



TOPAZ TRAVEL TRAILER AND FIFTH WHEEL OWNERS MANUAL

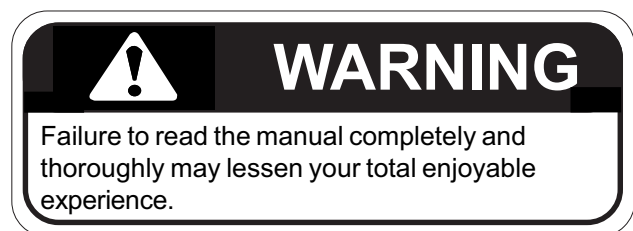
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FORWORD

A WORD TO TRAVEL TRAILER & FIFTH WHEEL OWNERS

Welcome to the growing number of discerning people who own and operate a Triple E Travel Trailer.

Our company takes great pride in the quality and excellence that the Triple E name represents. We have sought to anticipate your needs and desires with respect to safety, convenience, styling, and engineering.



We appreciate having you as our customer and have provided this manual and various component manuals to introduce you to the many features of your new Travel Trailer. Each person using the Travel Trailer should take time to read this manual before operation. It will help you to better understand the many built-in operational features of this recreation vehicle. Talk to your dealer if you have any questions about your unit.

We hope you will enjoy your new Travel Trailer, and we wish you pleasant and carefree travelling.

IMPORTANT

This trailer is equipped with the latest systems, appliances and operational equipment for your comfort and convenience.

The use of three way systems; 120V, 12V and propane needs careful consideration as the availability of energy in both the 12V and propane systems has a limited capacity and volume. Due caution should be applied and in case of doubt, clarification from the authorized Triple E dealer or our factory service department should be obtained. **Do not modify the unit in any way. Unauthorized modification may impair the function of life of the vehicle and could lead to an accident.**

Modifications that are not approved by Triple E may void the warranty and transfer responsibility for the changes to the owner.

This manual is intended to be a guideline. This manual despite our best efforts should not be considered comprehensive in all details. We invite you to use this manual to help you learn the basics about your trailer. The component operation will be in the manual for the fridge, stove, etc..

INFORMATION AND SAFETY

Throughout the manual, certain instructions, procedures and information is emphasized with the words IMPORTANT, CAUTION and WARNING. These key words denote the level of care that each operator should exercise on mechanical and safety items.

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1 INTRODUCTION

Congratulations on your choice of a Triple E built Travel Trailer or Fifth Wheel for your travelling and touring comfort and enjoyment. It utilizes the latest design features and manufacturing techniques to insure safe, efficient and trouble-free operation at all times.

1.1 OPERATOR'S MANUALS

All owners/operators should read, understand and follow all instructions in this travel trailer manual and manuals for all auxiliary systems and appliances. A few minutes spent reading the appropriate manual will pay rich dividends in providing safe, efficient and trouble-free operation. Refer to the appropriate manual supplied for auxiliary equipment and appliances as required.

This manual covers all the systems, controls and operations unique to this trailer. Always keep the kit with the trailer for easy reference. Pass the kit on to new operators or owners as appropriate for their information as well. Use the Table of Contents or Index to find specific information.

If more information is required or you do not understand something, please contact:

Your Triple E dealer or
Triple E Recreational Vehicles
301 Roblin Blvd., Box 1230
Winkler, Manitoba Canada
R6W 4C4
Tel: (204) 325-4361
Fax: (204) 325-5241

1.2 INFORMATION KIT

An information kit is provided with each vehicle and includes specific information on specific systems, features and appliances including:

1. Air Conditioning
2. Generator
3. Furnace
4. General Operation
5. Entertainment System
6. Leveling System
7. Water Heater
8. Safety
9. Flooring and Counter Tops
10. Rear View Monitor
11. Electric Step
12. Fridge
13. Alarm System
14. Plumbing Fixtures
15. Roof and Side Walls
16. Converter
17. EMS (Energy Management System)

1.3 OPTIONS AND EQUIPMENT

Your travel trailer is available in various sizes, models and floor plans. The equipment, accessories and components described in this manual may not necessarily apply to your vehicle. Refer to the material provided in the information kit for the detailed instructions unique to your unit.

1.4 KEYS

It is a good idea to keep a record of all key code numbers and keep them in a safe place - not in your vehicle. Use the charts at the front of this manual but make a duplicate copy to be stored elsewhere.

1.5 VEHICLE CERTIFICATION LABEL

This label contains vehicle identification and other important reference information. The vehicle certification label is located on the exterior left-front corner of the trailer. Never remove or destroy this label.

MANUFACTURED BY / FABRIQUE PAR:

DATE:

GVWR/PNBV		KG (LB)			
GAWR/PNBE			TIRES/PNEU	RIMS/JANTE	COLD INFL. PRESS./PRESS. DE GONFL. A FROID
FRONT/ AVANT	KG (LB)				KPA SINGLE DUAL PSI/LPC <input type="checkbox"/> <input type="checkbox"/>
INTERM/ INTERM	KG (LB)				KPA SINGLE DUAL PSI/LPC <input type="checkbox"/> <input type="checkbox"/>
REAR/ ARRIERE	KG (LB)				KPA SINGLE DUAL PSI/LPC <input type="checkbox"/> <input type="checkbox"/>

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
THIS VEHICLE CONFORMS TO ALL APPLICABLE STANDARDS PRESCRIBED UNDER THE CANADIAN MOTOR VEHICLE SAFETY REGULATIONS IN EFFECT ON THE DATE OF MANUFACTURE. - CE VEHICULE EST CONFORME A TOUTES LES NORMES QUI LUI SONT APPLICABLES EN VERTU DU REGLEMENT SUR LA SECURITE DES VEHICULES AUTOMOBILES DU CANADA EN VIGUEUR A LA DATE DE SA FABRICATION.

V.I.N./N.I.V.: TYPE/TYPE: FD-228

Fig. 1-1 REFERENCE NUMBER CODE

1. **Gross Vehicle Weight Rating (GVWR):**
Total permissible weight of the vehicle, including total cargo carried (including all liquids) and equipped with all options. This rating must equal or exceed the UVW (Unloaded Vehicle Weight) plus the NCC (Net Carrying Capacity).
2. **Unloaded Vehicle Weight (UVW):**
The weight of this trailer with no cargo, water, LP gas or accessories. It is the weight of the unit as built.
- 3a. **Net Carrying Capacity (NCC) Amercian Units:**
Defined as the maximum weight of all cargo, supplies, water, LP gas and accessories.
- 3b. **Net Carrying Capacity (NCC) Canadian Units:**
Defined as the allowable weight that can be carried after the LPG and water tanks are filled.
4. **Gross Axle Weight Rating:**
Total permissible weight allowed for the axles (listed in pounds and kilograms).
5. **Suitable Tire Choice:**
Tires recommended to meet handling, loading and safety requirments. When replacing any of the tires, the new tires must meet these specification.
6. **Suitable Rim Choice:**
Wheel rims recommended to meet handling and safety requirments. When replacing any of the rims on the vehicle ensure that the new rims meet these specifications.
7. **Cold Inflation Pressure:**
Inflation pressures recommended (while cold) for the tires originally equipped on your vehicle.
8. **Axle Wheel Configuration:**
Dual axle/Single wheels.
9. **Serial Number:**
This is the serial number assigned to the completed trailer by Triple E Industries.
10. **Type:**
States the NHTSA designated usage classification for your travel trailer.
11. **Model:**
Lists the Triple E product model number of your trailer.
12. **Color:**
Signifies the color code number of the decor used throughout the trailer. This number is necessary for ordering replacement cushions, curtains, carpet, etc. It also is found in the wardrobe.

NOTE

The specifications sheet is located in the wardrobe. Beneath the specification sheet are the exterior color codes.

All Triple E trailers are built according to CSA standards and RVIA standards where applicable.

TOPAZ



Fig. 1-3 IDENTIFICATION INFORMATION (LABEL LOCATION)

1.6 IDENTIFICATION INFORMATION

Take a few minutes to fill in this information. It will be a handy reference for you. (Some appliances may be optional).

Your Name _____

Trailer Model _____

Trailer Serial No. _____

Date Purchase _____

Dealer Name _____

Address _____

Phone No. _____

Insurance Policy

Agent Name _____

Policy No. _____

Agent's Phone No. _____

Range/Oven

Manufacturer _____

Model _____

Serial No. _____

Microwave Oven

Manufacturer _____

Model _____

Serial No. _____

Video Cassette Player

Manufacturer _____

Model _____

Serial No. _____

Television

Manufacturer _____

Model _____

Serial No. _____

Stereo

Manufacturer _____

Model _____

Serial No. _____

Water Heater

Manufacturer _____

Model _____

Serial No. _____

Furnace

Manufacturer _____

Model _____

Serial No. _____

Air Conditioner

Manufacturer _____

Model _____

Serial No. _____

Generator

Manufacturer _____

Model _____

Serial No. _____

Miscellaneous

Key No. _____

Digital Door Lock Code _____

1.7 EXTERIOR FEATURE IDENTIFICATION - TRAILER MODEL

Composite model shown for illustration purposes only. Actual locations of features depends on trailer model and options.

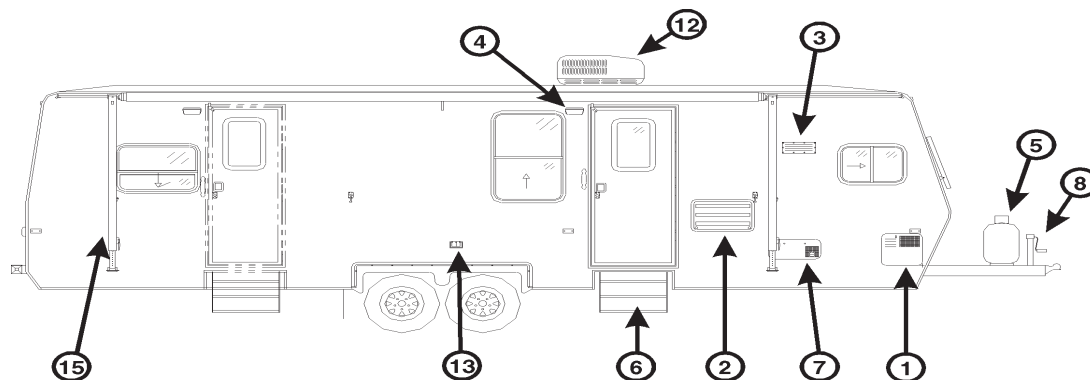


Fig. 1-3 EXTERIOR IDENTIFICATION - TRAVEL TRAILER ONLY (RIGHT)

- | | |
|-----------------------------------|-------------------------------|
| 1. Water Heater Service Access. | 9. Fresh Water Filler. |
| 2. Refrigerator Service Access. | 10. City Water Connection |
| 3. Range Hood Vent. | 11. Sewer Hose Storage. |
| 4. Porch Light. | 12. Roof Air Conditioner. |
| 5. Propane Tank. | 13. Exterior 120v Receptacle. |
| 6. Entrance Step. | 14. Shore Power Hook-Up. |
| 7. Furnace Service Access Panel*. | 15. Awning. |
| 8. Hitch Jack. | 16. Exterior Shower. |

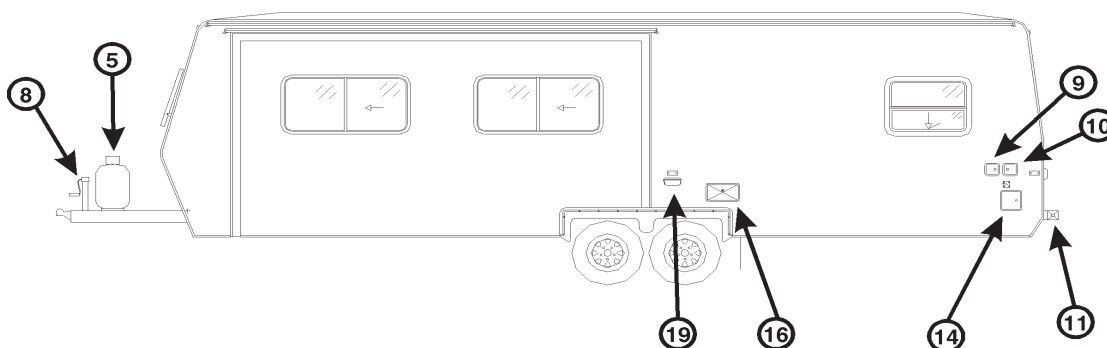


Fig. 1-4 EXTERIOR IDENTIFICATION - TRAVEL TRAILER ONLY (LEFT)

NOTE

Some equipment shown may be optional.

*CAUTION

Be careful. These features may become hot while water heater or furnace are in use.

FIFTH WHEEL MODEL

Composite model shown for illustration purposes only. Actual locations of features depends on trailer model and options.

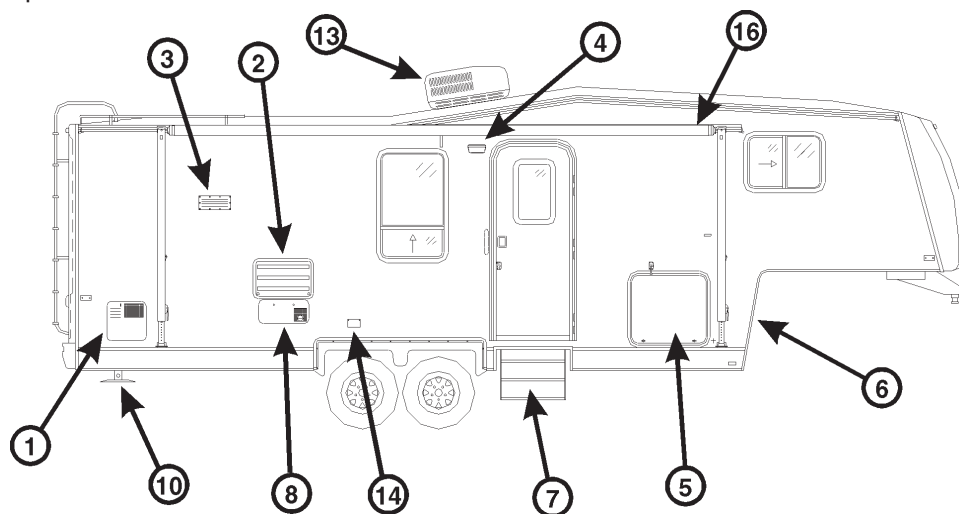


Fig. 1-5 EXTERIOR IDENTIFICATION - FIFTH WHEEL TRAILER ONLY (RIGHT)

- | | |
|-----------------------------------|-------------------------------|
| 1. Water Heater Service Access. | 11. Fresh Water Filler. |
| 2. Refrigerator Service Access. | 12. Sewer Hose Storage. |
| 3. Range Hood Vent. | 13. Roof Air Conditioner. |
| 4. Porch Light. | 14. Exterior 120v Receptacle. |
| 5. Storage Compartment. | 15. Shore Power Hook-Up. |
| 6. Propane Tanks. | 16. Awning. |
| 7. Entrance Step. | 17. Exterior Shower. |
| 8. Furnace Service Access Panel*. | 18. City Water Connection. |
| 9. Battery Compartment. | 19. Courtesy Light. |
| 10. Frame Stands. | |

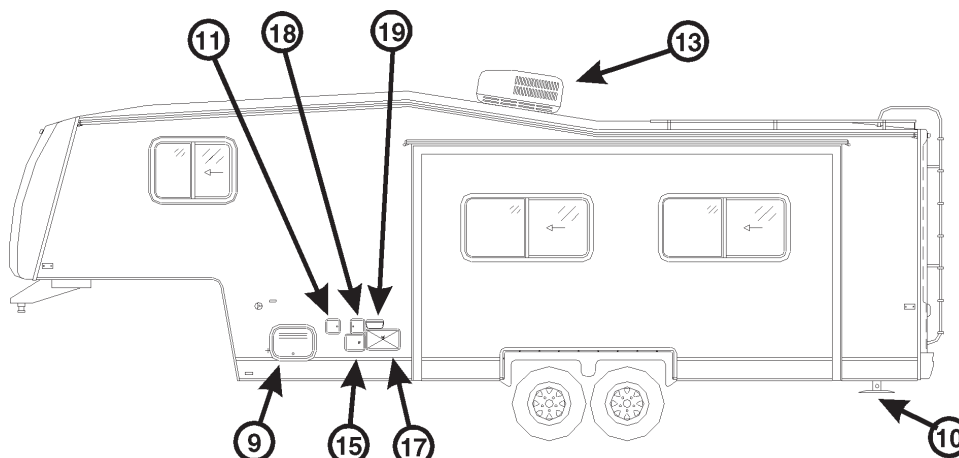


Fig. 1-6 EXTERIOR IDENTIFICATION - FIFTH WHEEL TRAILER ONLY (LEFT)

NOTE

Some equipment shown may be optional.

*CAUTION

Be careful. These features may become hot while water heater or furnace are in use.

1.8 SERVICE ASSISTANCE

Your dealer will be glad to provide any additional information you need and to answer any questions you may have about the operation of your travel trailer. When it comes time for service, remember that your dealer knows your trailer best and is interested in your satisfaction. Your dealer will provide quality maintenance and assistance during the period of your ownership. It is advisable that you follow a regular maintenance schedule to keep your vehicle functioning at its best.

Should you require warranty assistance while travelling, take your trailer to the nearest Triple E dealer for help.

1.9 REPORTING SAFETY DEFECTS

If you believe that your travel trailer has a safety defect of any kind that could cause injury, or death, contact Triple E immediately. As well, make sure to contact the National Highway Traffic Safety Administration (NHTSA) in the United States or Transport Canada in Canada and report your concern.

The NHTSA will investigate the concern should there be a number of similar complaints. They have the authority to order a recall and repair campaign depending on the nature and severity of the problem.

The NHTSA may be reached by using the Auto Safety Hotline at 1-800-424-9393 (366-0123 in the Washington, DC area) or by writing to: NHTSA, US Department of Transportation, Washington, DC 20590. The Hotline will also provide you with additional information on motor vehicle safety.

In Canada, call 1-613-993-9851 or write to: Transport Canada and Road Safety, 2780 Sheffield Road, Ottawa, Ontario K1B 3V9.

1.10 TRAVELLING COMFORT


Triple E has made every effort to design and construct your travel trailer or fifth wheel for your comfort and safety. We know that your investment is important to you as well as to us. Our engineers and design team has dedicated itself to the development of the best travel trailer comfort and protection packages in the industry.


2 SAFETY

Safety, comfort and ease of operation are key considerations during the design and manufacturing of all Triple E Travel Trailer. It is the responsibility of the owner or operator to read, understand and follow all instructions in the Travel Trailer and appliance or auxiliary system manuals and from safety signs on the vehicle. Specific items, procedures or instructions are identified with the key words IMPORTANT, CAUTION and WARNING to emphasize areas of special concern. These key words are defined as:

IMPORTANT □ This word is used to highlight or emphasize a specific procedure, information or result for a system or the trailer.

CAUTION □ This word is used to highlight or emphasize a specific procedure or information that if not followed will result in damage to a system or the trailer.

 **WARNING** □ This word is used to highlight or emphasize a specific procedure or information that if not followed can involve your personal safety as well as cause trailer damage.

The safety glyph  identifies an area that involves the personal safety of the operator, passengers or a bystander. Always read, understand and follow the instructions and information in the safety sign or manual instruction. Do not take chances with safety. Most accidents can be prevented.

In this section we have compiled a series of items relating to safety that everyone should follow. Although this compilation is thorough, we realize that it does not cover everything. Each person has the responsibility of following all listed safety items covered in this and other manuals.

2.1 GENERAL SAFETY

1. The most important safety feature on this vehicle is the operator/user. It is the operators'/users' responsibility to read, understand and follow all safety and operating instructions in the vehicle, appliance and system manuals. Most accidents can be prevented.
2. A person who has not read and understood all operating and safety instructions is not qualified to operate/use this vehicle. An untrained or uninformed operator/user exposes themselves, passengers and other drivers/vehicles/property to possible serious injury or death and property damage.
3. Do not modify the trailer in any way. Unauthorized modification may impair the function and/or safety and could affect the safety and life of the trailer.
4. Be sure the trailer is loaded in a way to provide the required weight on the hitch of the trailer. An improper hitch weight can lead to poor handling characteristics when travelling or cause instability on the highway.
5. Be sure the hitch is secured to the towing vehicle with a mechanical retainer, always attach the safety chains and connect the cable to the breakaway switch pin.
6. Review the location, function and operation of the escape window with everyone who will be using the travel trailer. Inspect the locking mechanism.
7. Establish a monthly fire extinguisher inspection program to keep the extinguisher in good condition and fully charged. Inspect the extinguisher again prior to a vacation or trip.
8. Ensure that the specifications of your tow vehicle allow for the safe trailering of your Recreational Vehicle. Overloading the tow vehicle can cause handling and braking problems.

2.2 DRIVING SAFETY

1. Only trained and licensed drivers are allowed to tow this trailer.
2. Observe all applicable road and driving regulations. Check with local transport authorities if you have any questions.
3. Inspect the trailer before towing. Adjust, repair or replace components or systems to maintain trailer in good towing condition. Do not tow the trailer unless it is in good condition.
4. Do not allow anyone in the trailer when travelling on the highway. The trailer is not equipped with passenger restraints appropriate for highway travel.
5. A trailer attached to a tow vehicle adds considerable weight and length to travelling unit and changes its stability and handling characteristics. Allow more space for stopping, turning, passing, parking, accelerating etc. during operation. The extra weight and length results in different stability characteristics. Drive at a slower speed when turning, cornering or on rough terrain. Use extra care in adverse conditions such as rain, darkness, snow, sleet, icy surface, hilly terrain, rough road or a soft surface.
6. Maintain brakes on both the tow vehicle and the trailer in top condition at all times. Allow extra distance for stopping. Be extra vigilant in adverse surface conditions such as wet, icy, slushy, rough or a soft surface when applying the brakes. After going through water, slush or snow, apply the brakes carefully in an open area to check if one side grabs. Use gentle applications to dry the brakes and restore uniform operation. Do not tow if uneven brake action persists.

2.3 FUEL (MOTOR AND LP GAS)

1. Do not smoke when filling tow vehicle fuel tank or LP gas tank.
2. Extinguish all pilot lights before refuelling.
3. Do not bring or store fuel or LP gas containers, gasoline or other flammable liquids in the vehicle. Vapours can be released causing breathing difficulties or an explosion or fire. LP gas containers vent excess pressure into the atmosphere.
4. Do not fill LP gas containers more than 80% of capacity. Overfilling can lead to excessive venting or gas flow and result in an explosion or fire.
5. Do not use an open flame to check for an LP gas leak. Use soapy water and watch for the bubbles. Close valve on tank and latch all covers, caps and doors after filling system.
6. Do not connect natural gas to the LP system.
7. Install LP gas regulators with the pressure regulator vent facing downward. Do not obstruct vent hole. In cold weather, condensation can get into the regulator and cause freeze-up. Use a light bulb to thaw out. Do not use an open flame or heat lamp to thaw out.
8. When using the stove, turn igniter knob to create a spark at the burner when burner is turned on. Large volumes of gas can lead to an explosion and fire if igniter is not turned when burner turned on. Turn burner off and let gas dissipate before trying to relight if it does not light immediately.
9. Do not use the furnace when the vehicle is moving. Turn the gas off at the LP container.
10. Do not obstruct LP gas compartment when parking to provide access to master valve to gas system. Open access allows emergency workers to close master valve if an emergency occurs.

2.4 MINIMIZING ASPHYXIATION

RISK

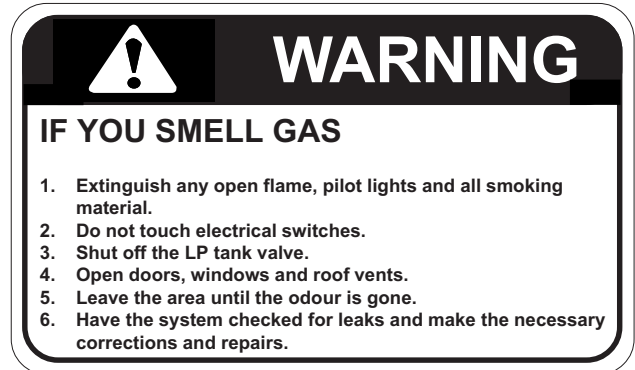
1. Do not use portable fuel-burning equipment including wood and charcoal grills and stoves in the vehicle. The use of this equipment can generate deadly carbon monoxide gas or cause fires.
2. Provide proper ventilation when using the gas range or oven to prevent asphyxiation. Do not use the oven or range to heat the vehicle. Long term use of these appliances for space heating increases the chance of asphyxiation. Before using the range or oven:
 - a. Open overhead vent or turn on exhaust fan, and...
 - b. Open window.
3. Avoid breathing the exhaust fumes from the tow vehicle engine and LP gas burners such as the range, oven, refrigerator, furnace or water heater. Provide ventilation to the inside of the trailer for adequate air exchange when appliances or furnaces are being used to prevent a build-up of carbon monoxide. Be sure all alarms are working.
4. Do not run tow vehicle engine in a confined area such as a garage unless you are immediately moving it out of the area.
5. Close windows when driving to prevent drawing exhaust fumes into trailer.

2.5 FORMALDEHYDE FUMES WARNING

Formaldehyde based adhesives are used in some components in this vehicle and may release small amounts of formaldehyde fumes into the vehicle for an unknown period of time until fully dissipated. Some people who are allergic to the fumes may experience irritation to the eyes, ears, nose and throat. Small infants may have a more serious reaction. Although long range effects are not well understood, testing to date has not revealed any serious health effects in humans at the level of emission from these products. Reduce the effects of the formaldehyde fumes by keeping the unit well ventilated.

2.6 LP GAS LEAKS

1. Read, understand and follow safety sign next to stove:



2. Use soapy water to check for leaks and watch for bubbles. Do not use an open flame.
3. Correct or repair leak(s) before using appliances or vehicle again.

2.7 ALARMS

1. **Each Trailer Is Equipped With A LP Gas Alarm:**
 - a. The alarm will sound whenever there is an unsafe amount of gas in the trailer.
 - b. Follow instructions on safety sign and air out trailer to silence alarm.
 - c. Have a qualified service man find the leak and correct the problem before using unit again.
2. **Each Trailer Is Equipped With A Smoke Alarm :**
 - a. The alarm will sound whenever there is an unsafe amount of smoke in the trailer. Always use exhaust fan over the stove when cooking.
 - b. Open doors, vents and windows to air out trailer and silence alarm. Correct and eliminate smoke source.
 - c. Check alarm on a regular basis. Check when removing from storage, before trips and weekly thereafter. Depress center button to test alarm electronics. Test alarm sensor by blowing smoke (from safe, fire-free source) past sensor. If alarm does not sound when testing, determine source of problem and correct or replace alarm.
 - d. Do not remove battery to silence alarm. When alarm "beeps" every minute, battery is weak and must be replaced. Do not allow battery to go dead. Be sure to replace with recommended battery. Test after battery is replaced.
 - e. Clean and vacuum opening on smoke alarm once a month.
 - f. Do not try to repair alarm. Replace it.
 - g. Smoke alarms are not perfect and do not respond in all situations. The best safeguard is fire prevention.
3. Recurring alarm(s) indicate the slow accumulation of LP gas, carbon monoxide, or smoke. Have an authorized service center check system and identify source. Correct problem before resuming use of unit.
4. Refer to alarm manual(s) for more detailed instructions.

2.8 ELECTRICAL

1. Use care when working around batteries. The gases given off when charging are explosive. Keep sparks and flames away from battery. Wear protective clothing, eye protection and remove jewellery. Do not short across terminals.
2. Do not overload electrical circuits. Replace circuit breakers and fuses with components of similar capacity. Do not replace with larger capacity components (breakers or fuses).
3. Use only 3 prong grounded power and appliance cords.
4. Be sure trailer is well grounded to prevent shocks or electrocution. Do not plug utility power cord into an outlet that is not grounded. Do not modify plug to fit a receptacle for which it was not designed.
5. Use care when handling electrical appliances, power cords and other components. Misuse or abuse of electrical components can lead to shocks or electrocution. Do not use electrical components, cords or appliances with bare feet, wet hands or while standing in water or on wet ground.
6. Do not attach an extension cord to the utility power cord.

2.9 LOOSE COMPONENTS

1. Tie, strap or secure all tables, chairs and other furniture before travelling.
2. Close, latch or lock all doors, panels and gates before travelling.
3. Stow all cooking, serving, eating and other loose components before moving. Any loose component can become a projectile during sudden stops, manoeuvring or an accident.

2.10 MAINTENANCE

1. Do not go under a vehicle that is supported with a jack.
2. Do not mix bias and radial ply tires on the vehicle. Mixing types of tires can affect handling characteristics. Replace with the same size, type and load rating.

2.11 EMERGENCY EXITS

Each Travel Trailer is designed with an emergency exit window in the sleeping area. The side windows can also be used as alternate exits.

1. **Emergency Exit:**
Press down on the red latches of the emergency egress window and push out the window. (The egress window has hinges on top).

3 PREPARATION

Refer to information pack supplied with the Travel Trailer prior to using or towing the unit. Read, understand and follow instructions in the trailer, appliance and system manuals. Also follow the safety tips provided in Section 2. Travel trailers can be used many ways and in many conditions or circumstances. We have tried to compile operational and safety instructions to cover the normal conditions encountered with the unit. However these instructions are not all-inclusive. Each user or operator has the responsibility to use common sense around the unit and to consult a dealer if you have any questions.

3.1 TRAILER PREPARATION

3.1.1 KEYS

Several number coded keys are supplied with the trailer and include entry door, baggage compartment and others depending upon the features of your unit. Always keep a list of these numbers in a safe place (not in the trailer) for easy reference should you misplace any of the key(s). Supplying a locksmith with these numbers will allow them to cut a key to fit your lock.

3.1.2 TRAILER WEIGHTS

The trailer is designed with a frame/structure to carry a specific amount of weight on the axles and hitch/tongue. It is very important for the user not to exceed these specified weights to maintain structural/component integrity of the unit and to provide acceptable handling characteristics during transport. All weight ratings for the US and Canada are listed on the sticker located at the front left corner on the exterior of the unit. Review these ratings and insure compliance prior to loading the unit and transporting.

1. **Gross Vehicle Weight Rating (GVWR):**
This is the maximum permissible weight of the trailer. The GVWR is equal to or greater than the sum of the unloaded vehicle weight (UVW) plus the net carrying capacity (NCC).

2. **Unloaded Vehicle Weight (UVW):**
This is the weight of the trailer as it is built at the factory. The UVW does not include cargo, supplies, fresh water, LP gas, occupants or dealer installed options.
- 3a. **Net Carrying Capacity (NCC) USA:**
This is the maximum weight of cargo, supplies, fresh water, LP gas and dealer installed options. It does not include occupants as no one is allowed in the trailer when transporting.
- 3b. **Net Carrying Capacity (NCC) Canadian Units:**
Defined as the allowable weight that can be carried after the LPG and water tanks are filled.

NOTE

The GVWR must be equal to or more than the UVW plus NCC.

4. **Tongue/Hitch Weight:**
This is the weight that is carried by the tongue or the hitch and is transferred to the towing vehicle. Always weigh your trailer and tow unit to be sure the trailer is loaded properly to provide optimum handling characteristics when towing. Also ensure that the weight carrying capacity of the tow vehicle has not been exceeded.

3.1.3 TOW VEHICLE

It is the responsibility of the customer to specify, select and use an appropriate tow vehicle for your travel trailer. The combination of tow vehicle specifications and equipment plus the trailer loading will determine the handling and stability of the unit while travelling. Check and comply with all weight and handling requirements for each state or province you will be travelling through.

Tow vehicle requirements:

1. **Tow Vehicle Specs:**
Select a tow vehicle that has sufficient weight to be stable under all travelling conditions and has the appropriate equipment for your towing application (ie. heavy duty radiator and transmission, transmission oil cooler, heavy duty axle and rear end, suspension, wheels and tires).
2. **Weight and Weight Distribution:**
Weigh both the tow vehicle and the trailer to be sure the tow vehicle, trailer and axles have not been overloaded. Check the tags on the tow vehicle and the trailer to determine unit specifications. Do not exceed the GVWR or axle capacities of either unit. Weigh to be sure. Exceeding specifications can shorten component life and lead to poor handling characteristics and loss of control.
3. **Accessory Equipment:**
Always have a certified repair shop install the required accessory equipment (ie. tow hitch, sway control, coolers, etc.). Be sure the installer follows the manufacturer's installation instructions.
4. **Tow Hitch:**
Always use a hitch that distributes the load across the rear frame to minimize frame overloading. Be sure the hitch tow load rating exceeds the trailer GVWR (Gross Vehicle Weight Rating). Always use a 2-inch ball on the hitch to handle the hitch loads during transport. Keep the hitch and hitch ball as close to the rear bumper as possible to minimize rear overhand. Do not use hitch extenders.
5. **Sway Control:**
Always have a sway control system installed on your tow vehicle to improve handling and stability. Be sure it is installed and set per the manufacturers' instructions.
6. **Fifth-Wheel Hitches:**
Always have a certified repair shop install the fifth wheel hitch assembly into the tow vehicle. Be sure the hitch assembly has a 2 inch kingpin and has a tow load rating greater than the GVWR (Gross Vehicle Weight Rating) of your trailer. Do not use hitch extenders.
7. **Brakes:**
Always install and use a brake controller that automatically applies the trailer brakes in the same proportion as the tow vehicle brakes. The controller should also have the capacity of applying the trailer independently of the tow vehicle.
8. **Tire Inflation:**
Every operator should have an accurate hand-held gauge for checking tire pressure. Always check the pressure when the tires are cold and keep them inflated to their specified pressure as listed on the tire sidewall. Over or under inflated tires wear rapidly and adversely affect the handling and stability of the vehicle.
9. **Mirrors:**
Always install two rear view mirrors that extend out past the edge of each side of the trailer to provide clear visibility to the rear. Check the rear view mirrors frequently while driving to be aware of other vehicles on the road. Use a spotter to assist in directing the trailer when backing up.

4 TRAILER USE

Your Travel Trailer is designed to be easily and conveniently moved and transported from one location to another. It is the responsibility of the driver/user to securely attach the trailer to the tow vehicle, properly weigh the entire vehicle and drive carefully. This section of the manual will provide the recommended instructions on how each of these tasks should be done.

4.1 HOOKING UP/UNHOOKING

The travel Trailer must be securely attached to the tow vehicle to be sure that it doesn't inadvertently disconnect and that the electrical and braking systems function properly. Only use a tow vehicle that is equipped with the recommended accessories to handle the towing application (Refer to Section 3.1.4 Tow Vehicle).

4.1.1 HOOKING UP/UNHOOKING CONVENTIONAL TRAILER

Follow this procedure when hooking the trailer to your tow vehicle:

1. **Check Tow Vehicle:**
Check that the ball is securely anchored to the hitch frame, there are no bent or cracked components and the ball is lubricated. Correct deficiencies if any are found before attaching trailer.
2. **Check Trailer:**
Check for cracks in the tongue frame and under the front crossmember, that the ball lock mechanism moves freely and that the hitch is equipped with 2 safety chains. Correct deficiencies if any are found before attaching trailer.
3. Review and follow the hitch manufacturers instructions.
4. Clear the area of bystanders especially small children.
5. Slowly and carefully back tow vehicle up to the trailer. It always works best if another person helps to direct the tow vehicle. Stop when the ball gets close to the tongue.
6. Lower the hitch jack into position to support the tongue weight.
7. Raise and stow the trailer frame stands.
8. Use the hitch jack to raise the tongue above the ball.
9. Back the ball under the hitch pocket and stop. Open pocket fully.
10. Use the hitch jack to lower the tongue and socket around the hitch ball.
11. Close the coupler jaws around the ball and secure with a mechanical retainer.
12. Use the hitch jack to install the weight distributing hitch spring bars. Refer to spring bar manufacturers installation instructions and follow them during installation.
13. After adjusting spring bars, lower the tongue and transfer all the tongue weight to the hitch. Remove the foot and fully raise the jack.

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14. Check that the frames of both the trailer and tow vehicle are level. Set the spring bar length or adjust the height of the hitch ball as required to level the frames.

IMPORTANT

Do not transport trailer unless the frame is level. A frame that is not level loads the axles unevenly and reduces vehicle sway stability.

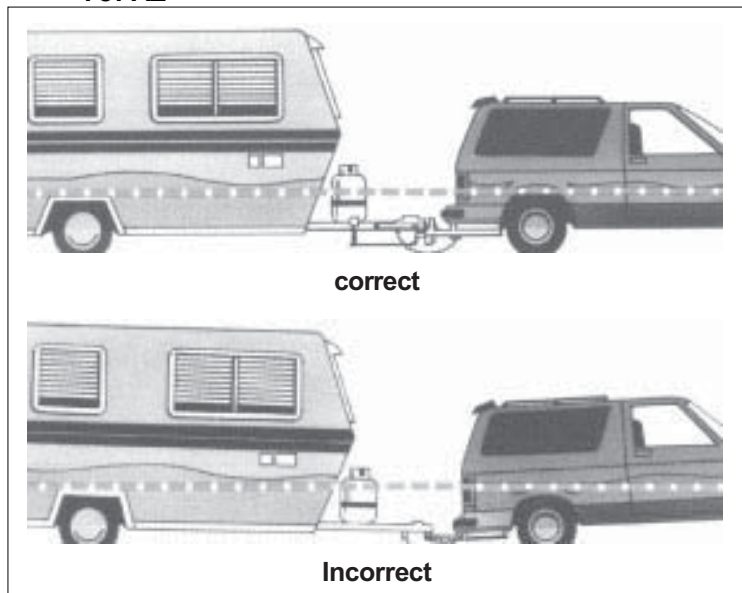


Fig. 4-1 FRAME LEVELLING

15. Review and follow the sway control manufacturers installation and adjustment instructions. Always use this system to minimize sway while travelling.
16. Connect both safety chains by crossing them under the hitch and attaching to a suitable anchor on the tow vehicle. Secure by installing the couplers through a link in the chain. Select a link that keeps chain as short as possible and yet long enough to allow sharp turns without the chain binding. Keep both chains the same length to minimize binding. Tighten coupler bolt to secure to chain link. By crossing chains under hitch, the chains will cradle the tongue if the hitch ever unhooks unexpectedly.

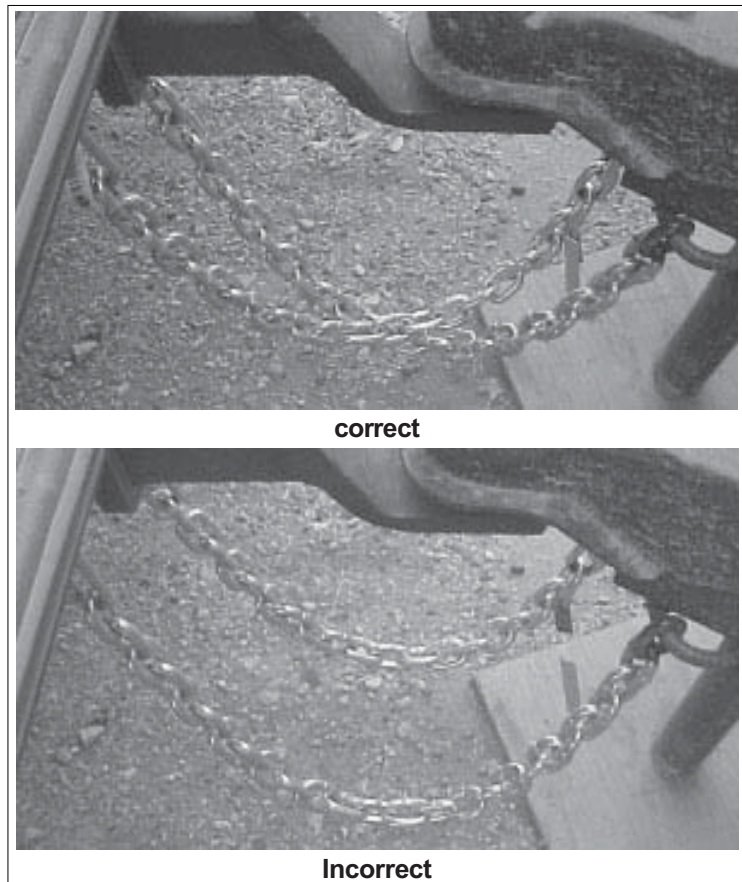


Fig. 4-2 CROSSED CHAINS

17. Insert the connector on the end of the trailer wiring harness into the tow vehicle electrical socket. Be sure it is securely seated to minimize electrical losses. Clean the terminals if required.
18. **Perform an electrical system functional:**
 - a. Start tow vehicle engine.
 - b. Activate brake lights, turn signals and running lights.
 - c. Correct any deficiencies before travelling.
19. Remove the chocks from in front of and behind each wheel.
20. **Perform an emergency braking system functional:**
 - a. Disconnect electrical plug-in.
 - b. Trip the breakaway switch to activate braking system.
 - c. Drive forward a little. All trailer tires should skid. If they do not, determine the cause of the problem before proceeding. Normally the batteries need to be brought to full charge.
 - d. Re-attach electrical connector to truck.
21. Reverse the above procedure when unhooking.



Fig. 4-3 HITCH

4.1.2 HOOKING UP/UNHOOKING FIFTH WHEEL TRAILER

Follow this procedure when hooking the fifth wheel trailer to the tow vehicle:

1. **Check Tow Vehicle:**

Check that the fifth wheel anchor is in good condition without any bent, cracked or broken components. Be sure the anchor assembly fasteners are tightened to their specified torque. Clean wear plate if it is covered with grit and apply a fresh coat of grease. Be sure it can pivot freely and the kingpin lock opens and closes freely. Correct deficiencies if any are found before attaching trailer.

2. **Check Trailer:**

Check that the fifth wheel hitch is in good condition without any bent, cracked or broken components. Check that the kingpin and anchor plate is not bent, cracked, chipped or broken. Correct deficiencies if any are found before attaching trailer.

3. Review and follow the hitch manufacturer's instructions.

4. Clear the area of bystanders especially small children.

5. Lower the rear tailgate of the tow vehicle.

6. Slowly and carefully back the tow vehicle up to the trailer. Stop as the hitch nears the kingpin.

7. Use the trailer frame stands to raise or lower the hitch as required for the kingpin position to match the height of the fifth wheel lock assembly.

8. Back the tow vehicle under the hitch until the lock closes securely around the kingpin. Stop, get out and close the kingpin lock.

9. Secure the lock with a mechanical retainer.

10. Raise landing gear and/or trailer frame stands to transfer the hitch weight to the tow vehicle.

11. Check that the trailer and tow vehicle frames are level. If the trailer frame is not level, adjust the receiver and trailer pin box so the frame is level.

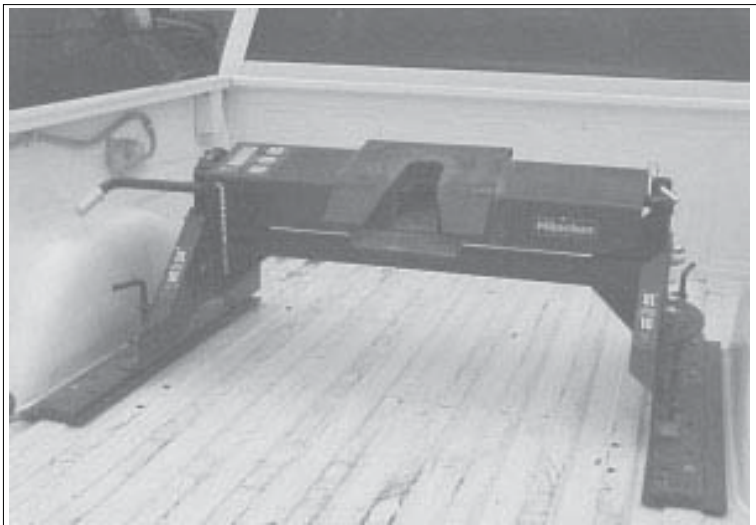


Fig. 4-4 FIFTH WHEEL ASSEMBLY

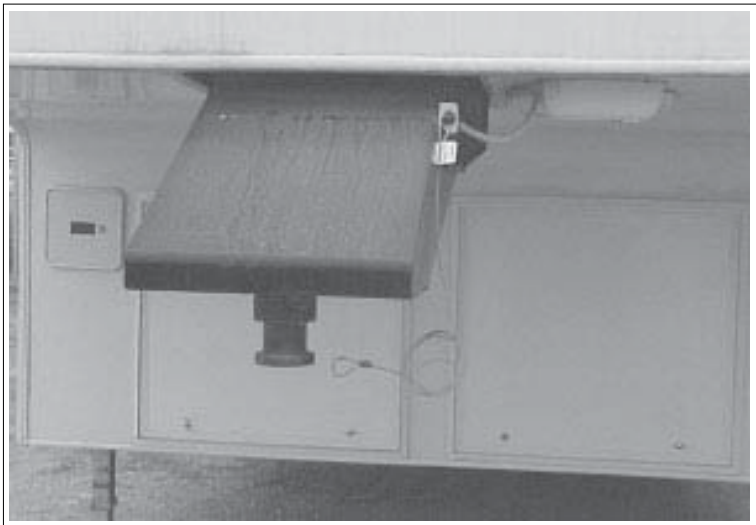


Fig. 4-5 HITCH ASSEMBLY

12. Attach the breakaway switch cable to an anchor point on the tow vehicle box. Set the cable length so the tow vehicle can make a full jackknife turn without activating the switch/brakes.

IMPORTANT

In order for the emergency braking system (activated by the breakaway switch cable) to function properly, the batteries on the trailer must be fully charged. Use the shoreline or tow vehicle charging system to maintain batteries in a fully charged condition.

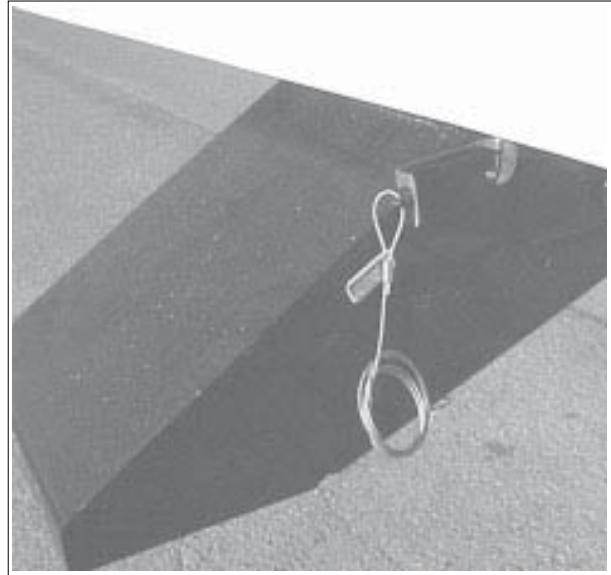


Fig. 4-6 BREAKAWAY CABLE

13. Insert the connector on the end of the trailer wiring harness into the tow vehicle electrical socket. Be sure it is securely seated to minimize electrical losses. Clean the terminals if required.
14. **Perform an electrical system check:**
 - a. Start tow vehicle engine.
 - b. Activate brake lights, turn signals and running lights.
 - c. Correct any deficiencies before travelling
15. Remove the chocks from in front of and behind each wheel.
16. **Perform an emergency braking system check:**
 - a. Disconnect electrical plug-in.
 - b. Trip the breakaway switch to activate braking system.
 - c. Drive forward a little. All trailer tires should skid. If they do not, determine the cause of the problem before proceeding. Normally the batteries need to be brought to full charge.
 - d. Re-attach electrical connector to truck.
17. Reverse the above procedure when unhooking.

4.2 TRAILER BRAKE SYSTEM

The electric brakes on your trailer are similar to the brakes on most cars and light trucks. The major difference between them is your trailer brakes are actuated and operated by 12 volt DC power from the trailer/tow vehicle batteries instead of hydraulic action. The brakes have been calibrated and set at the factory to apply smoothly and evenly.

The system consists of several components that must be in good working condition to function properly together to provide safe and reliable braking. Be familiar with each component and the requirements that keep them in top condition and functioning properly. Always refer to information contained within the component manufacturers manuals for more details.

1. **Tow Vehicle Battery:**

The tow vehicle battery is the primary electrical power source for the trailer braking system. It must be in good condition and fully charged.

2. **Trailer Battery:**

The trailer battery is the back-up electrical power source for the trailer brakes. This back-up source is used when the trailer is unexpectedly disconnected from the tow vehicle when travelling and powers the braking system when the breakaway switch is activated.

3. **Brake Controller:**

Each customer must select and install a trailer brake controller in the tow vehicle. Always follow the controller manufacturers instructions for installation and operation. The controller is connected into the tow vehicle brake system to actuate the trailer brakes whenever the tow vehicle brakes are applied. They also are designed with a manual slide control that can be used to manually engage the trailer brakes. The brake controller should be installed within easy reach of the driver. Use the controller in the manual mode to help control the sway when travelling.

Normally electric brake control systems are designed with an adjustable actuation set point that should be set so the trailer brakes engage slightly ahead of the tow vehicle brakes. In this way the trailer will not push the tow vehicle when the brakes are applied and the chance of jackknifing is minimized. If the trailer brakes lag the tow vehicle brake application, the trailer hitch will push on the tow vehicle when stopping and potentially cause jackknifing. In slippery road conditions (ie. wet, rainy, icy, slush, etc.), trailer brake lag will increase the chances for jackknifing.

For some controller systems, a special resistor can be added to the electrical circuit to prevent wheel lock-up. Refer to controller manufacturers instructions for more details.

4. **Wiring Harness:**

Every trailer is designed with a wiring harness that conveys electrical signals and power from the tow vehicle to the trailer. Each wiring harness is equipped with a heavy duty 7 pin connector that mates into a matched socket on the tow vehicle. Always have a trained professional install and wire the receptacle on the tow vehicle to be sure the required signals and power is conveyed to the trailer. Pass this wiring diagram to the installer when the outlet is being installed.

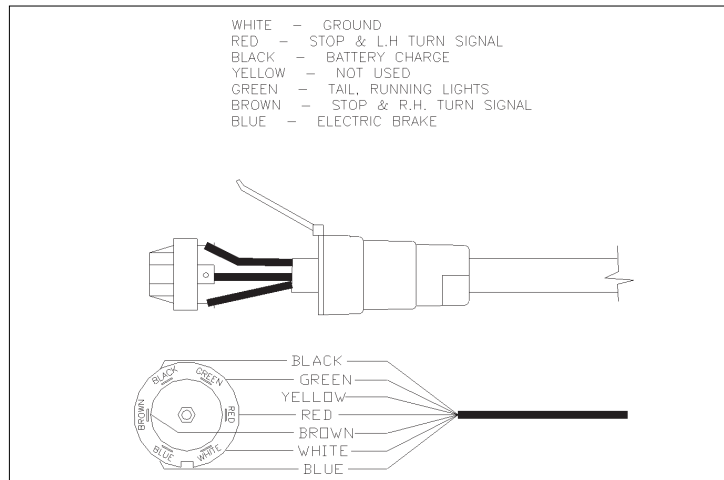
Always stow the connector away from the elements when not in use to keep clean and minimize corrosion. Inspect carefully each time before using. Clean the terminals before using if there is any sign of corrosion.

Always use a special high-temperature 10 gauge wire to terminal 4 to provide power for charging the trailer battery while driving. It is recommended that a 30 amp fuse be installed in the tow vehicle charging circuit. The trailer battery must be fully charged to properly power the trailer brakes in an emergency.

5. **Breakaway Switch:**

Every brake/electrical system is designed with a breakaway switch that directs trailer battery power to engage the trailer brakes when the switch is actuated. The switch is equipped with a pin that actuates (ie. opens or closes) the switch/trailer battery power to the brakes. A steel cable is connected to the pin and is long enough to extend along the tongue/hitch and attach to the tow vehicle. The cable must always be attached to a non-removable component on the tow vehicle.

When the pin is removed from the breakaway switch, the switch closes and electrical power from the trailer batteries actuate the brakes. In operation, if the trailer unhooks from the tow vehicle, the pin will be pulled from the switch and the trailer battery will actuate the brakes.



**Fig. 4-8 PLUG WIRING DIAGRAM
BRAKE AND ELECTRICAL SYSTEM**

Always check the function of the switch whenever the trailer is being hooked-up to a tow vehicle. Manually remove the pin and check that the brakes are locked up. Be sure the battery is fully charged. Install the pin again to proceed.

Lubricate the pin every three months with a light oil and spray the inside of the switch with a contact cleaner to prevent corrosion and keep these components in good condition.

4.3 TONGUE/HITCH WEIGHTS

The weight of the trailer is carried on the axles and the tongue or hitch. It is the responsibility of the owner to load the trailer in a way that will give the proper weight and loading distribution of the trailer/tow vehicle combination. Always weigh the vehicle to be certain of the weight distribution and that no axle capacities are exceeded. Improperly loaded or overloaded axles will adversely affect handling characteristics and result in poor stability. Reposition heavy items low and in the centre of the trailer. Light objects can be stored in cabinets, closets and drawers. Always secure luggage or similar cargo when placed in the trailer to prevent it from moving and causing damage when travelling.

The best handling characteristics are obtained when the trailers are loaded according to the following tongue/hitch weight ratios:

Standard Trailer:	9% to 15%
Fifth Wheel Trailer:	15% to 25%

Follow these steps when determining vehicle weight information:

1. Load trailer for travel (cargo, supplies, water, LP Gas, etc.).
2. Drive the entire vehicle onto scale and weigh. _____ Total Weight
3. Drive forward until front wheels are off scale. Weigh. _____ Total Less Front Axle Weight
4. Drive forward until tow unit is off scale. Weigh. _____ Trailer Gross Axle Weight
5. Back trailer onto scale and unhook. Weigh trailer. _____ Trailer Gross Vehicle Weight
6. Drive tow vehicle onto scale. Weigh. _____ Truck Gross Vehicle Weight
7. Weigh truck rear axle. _____ Truck Rear Axle Weight
8. This provides the user with all the weights required to determine and calculate ratios and capacities. Follow this procedure to insure compliance:
 - a. Record truck and trailer gross and axle capacities (from Vehicle Decals).
 - b. Calculate hitch/tongue weight ratio

$$\frac{(\#5 - \#4)}{\#5} = \text{Ratio} \times 100 = \% \text{ or } (\text{Gross Trailer Weight} - \text{Gross Trailer Axle Weight}) \times 100 / \text{Gross Trailer Weight} = \%$$
 - c. Reload trailer as required to comply with hitch/tongue weight ratio.
 - d. Verify compliance with truck and trailer gross vehicle weights and axle gross capacities.
 - e. Unload or reload as required. Do not exceed specifications.

4.4 TRAILER LOADING

The trailer is designed to provide maximum flexibility and comfort to a wide range of users. As a result, it is equipped with a range of closets, luggage compartments, drawers and other storage areas to satisfy every need. If all storage areas are filled to capacity, the trailer will probably be overloaded.

It is the responsibility of the owner to weigh the trailer prior to travelling to be sure that it does not exceed axle weight capacity and hitch/tongue weight ratio. Exceeding any of the trailer specifications can affect the life of the unit and handling characteristics.

Always load heavy objects low in the coach and over the axles to keep the centre of gravity low. Light objects can be placed or stored anywhere. Do not carry more than 100 lbs. in the luggage compartment or on the roof. Neither area is designed to carry more weight than 100 lbs. Secure and brace cargo and stored items prior to travelling to prevent damage to cargo and to prevent changing of weight ratios. Install spacers or packing paper around items in the cupboards, refrigerator and other storage areas.

After weighing the unit, reload cargo as required to insure compliance with weight and weight ratio specifications.

Place emergency equipment such as a first aid kit, traffic flares, tools, flashlights, etc. in a convenient place for easy access.

4.5 ELECTRICAL

Each unit is designed with space for an on board battery that provides reserve electrical power to the trailer when power is not provided by the tow vehicle or the shoreline. It is important that all components be maintained in good condition for the trailer to function properly.

1. **Battery:**

Always keep the trailer battery in good condition and fully charged. The battery provides reserve electrical power for the coach when the shoreline is not hooked up and power to apply the trailer brakes should the hitch/tongue unhook from the tow vehicle during travel.

Charging takes place whenever the shoreline is plugged in. Normally the battery will be at full charge if the trailer is being occupied because the shoreline is connected. Charge the battery prior to travelling if the trailer has been in storage for a time or the shoreline has been disconnected.



Charging will also take place when the wiring harness is plugged into the tow vehicle. This will keep the trailer battery fully charged while travelling.

2. **Wiring Harness Plug:**

The trailer wiring harness is equipped with a 7 pin connector that plugs into a mating receptacle on the tow vehicle. The harness transmits electrical power from the tow vehicle to the trailer brakes, lights and battery. Keep all components clean and in good condition to minimize problems.

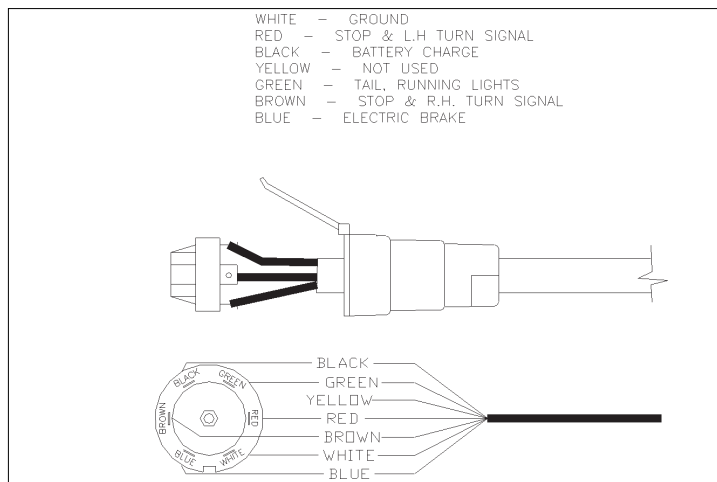
a. **Installation:**

Always have an authorized repair center install the tow vehicle receptacle plug and associated wiring. Improper installation can adversely affect the trailer electrical system. Never tow the trailer unless the wiring harness is connected.

b. **Plugs:**

Special 7 pin connectors are used on the end of the wiring harness to transmit the power between the trailer and tow vehicle. Install the plug on the tow vehicle per the connector wiring diagram. Always use a #10 wire on the ground circuit to prevent compromising the battery charging efficiency.

Always keep both the male and female portions of the plug clean and free of corrosion. Protect both ends from dirt, moisture and the elements when not in use. Before connecting the plugs, check each terminal for corrosion. Clean prior to connecting.



**Fig. 4-9 7 PIN CONNECTOR WIRING DIAGRAM
BRAKE AND ELECTRICAL SYSTEM**

5 TRAVELLING

Your Travel Trailer is designed to provide maximum convenience and comfort when used as a home or when travelling. By following some general recommendations and practices, it will be easy to transport the trailer from place to place.

5.1 PRE-TRIP INSPECTION AND PREPARATION

1. Be sure all equipment and systems have been serviced and ready for travel.
2. Inspect wheel lugs for tightness. Tighten to their specified torque level.
3. Use an accurate gauge to check tire pressures. Tire pressure recommendations are embossed in the tire sidewall. Always check the pressure when the tires are cold. Hot tires can give misleading readings. Bring tires to recommended pressure before travelling.
4. **Trailer Preparation:**
 - a. Check that all external connections (sewer, water, phone, cable, shoreline, etc.) are disconnected and stowed. Close, secure and/or lock all external compartments.
 - b. Retract, stow and secure TV antenna.
 - c. Fully retract room extension and install travel locks (if so equipped).
 - d. Secure all objects in trailer. Tie, latch or lock all loose objects as appropriate. An unsecured object can become a dangerous projectile in a sudden manoeuvre or accident.
 - e. Sanitize and fill fresh water tank if required. Turn off water pump.
 - f. Start the refrigerator a day ahead of time so it will be cold for your trip.
 - g. Fill LP gas container. Be careful not to

overfill LP gas container. An overfilled LP gas container will cause the gas regulator to fail, and may result in problems with LP gas components. Turn off LP gas valve on LP container. Make sure all LP gas controls are turned off (Furnace, Oven, Water Heater, Fridge). Check for LP gas leaks regularly using soapy water.



- h. Check that the fire extinguisher is in good condition and fully charged.
 - i. Deodorize waste holding tank.
 - j. Retract steps and lock in the travel/stowed configuration.
 - k. Close, secure and lock the door to prevent intruders and minimize the chance of a door coming open in an accident.
5. Attach trailer to the tow vehicle (Refer to Section 4 for detailed instructions). Follow all equipment check-out procedures.

5.2 EMERGENCY EQUIPMENT CHECK LIST

Use this list as a guide to identify the minimum amount of emergency or safety equipment. Take more as appropriate for your travel or personal needs.

1. First Aid Kit
2. Emergency Flares
3. Tool Box and Tools
4. Plastic Bucket
5. Tow Rope or Chain
6. Wheel Blocks or Jacks
7. Water Hose
8. Electrical Cord Extension (100-150 ft./minimum 3 wire/30 amp)
9. Fire Extinguisher
10. Hydraulic Jack and Lug Wrench (Jack not supplied)
11. Spare Tire

5.3 DRIVING

1. To The New Driver:

For people that have never towed a trailer before, it is recommended that they slowly drive to a large open area (field, parking lot, etc.) and practice driving. Practice starting, stopping, turning and backing-up. A vehicle handles much differently with a trailer attached. A trailer substantially changes the power to weight ratio of the total unit and affect the accelerating/decelerating characteristics. Try starting and stopping several times at a slow speed to get the feel of the new characteristics.

Turn both to the right and left to get the feel of the new handling characteristics. Learn to use both side mirrors to monitor what is happening behind you. Use the center line, road edge or the road lanes as a reference.

Practice backing-up with no obstacles around. Be sure to use both side mirrors to monitor your progress.

Practice driving on the open road when there is minimal traffic. Use slow speed during the learning process. Increase the speed only when you feel comfortable with the vehicle and the new handling characteristics.

Do not allow a new or inexperienced driver to operate the vehicle without practising in an open area.

2. Handling:

A trailer attached to a tow vehicle substantially changes the weight to power ratio of the tow vehicle. As a result the unit accelerates and decelerates at a slower rate than it previously did. You will have to allow a longer open space when passing another vehicle and leave more space between you and the vehicle ahead to allow for safe stopping. Allow more space when passing to prevent the trailer from hitting the passed vehicle.

When going underneath a bridge or similar overhang, be sure you have sufficient clearance. Check the trailer specification to determine its height. Measure if you have any doubts. There should always be at least 6 inches of clearance.

With a little practice you will become accustomed to the handling characteristics and feel as comfortable towing the trailer as driving the tow vehicle alone.

3. Turning/Cornering:

The tires/axles of the trailer are located a considerable distance behind the rear axle of the tow vehicle. As a result, while turning the trailer tires do not track in the same line as the tow vehicle. In high speed gradual turns the trailer tracking does not affect the unit manoeuvring characteristics.

However at slow speeds when sharp corners or special manoeuvring is required, the tow unit must go slightly past the corner before turning to allow sufficient space for the trailer axle to go around the corner or clear the obstruction.

Always swing wide like a semi trailer to provide the required clearance. This is particularly important in urban areas with heavy traffic and the need to make sharp corners. Remember that you as the driver have the responsibility to drive in a manner so that the trailer does not hit other vehicles.

4. Braking:

The trailer is equipped with electric brakes that work in conjunction with the brakes on the tow vehicle. They work well together to decelerate and/or stop the vehicle provided the following tips are observed:

a. Function:

Test the function of the trailer brakes, breakaway switch, controller and electric harness whenever attaching to the tow vehicle. Correct all unusual conditions or problems found before travelling. Any deficiencies to the braking system can adversely affect the handling characteristics or safety of the vehicle.

Set the controller to apply the trailer brakes slightly ahead of the tow vehicle when the system is set in the automatic mode. This will minimize the possibility of jackknifing when the brakes are applied.

b. Brake Application:

- Do not use the trailer brakes to stop the vehicle. The trailer brakes are designed to stop the weight of the trailer not the entire vehicle. Excessive use of the trailer brakes alone overloads the brakes and leads to overheating, fading and short life.
- Do not use only the tow vehicle brakes to stop the vehicle. The tow vehicle brakes are designed to stop the weight of the tow unit not the entire vehicle. Excessive use of the tow vehicle brakes alone overloads the brakes and leads to overheating,

fading and short life.

In addition, vehicle handling is adversely affected. The trailer continues to push on the tow vehicle when the brakes are applied. This can cause jackknifing as the trailer hitch tries to go past the tow unit. This is particularly important in adverse driving conditions such as ice, snow or wet road conditions. Be safe - use both sets of brakes.

- Set the trailer brake controller to function in the automatic mode. In this mode, the driver does not have to apply the brakes manually and can focus on driving. In the automatic mode, the trailer brakes "lead" the application of the tow vehicle brakes. This minimizes the chance for the vehicle to jackknife when stopping.

5. Passengers:

Triple E does not recommend carrying passengers in the trailer when travelling. There are no provisions for secure seats and seat belts to provide a safe environment.

6. Mountain Driving:

When driving in hilly or mountainous terrain you should employ different driving techniques than those used when driving under normal, flat conditions.

a. Climbing a Hill:

The automatic transmission of the tow vehicle is designed to down-shift automatically when required during a long uphill climb. If you find that the transmission shifts up and down rather frequently, it is a good idea to select a lower gear for the duration of the climb to prevent this repeated shifting. This will prevent unnecessary wear and tear on your transmission. If the tow vehicle has a standard transmission, put the transmission in a lower gear that will not require additional shifting.

CAUTION

Observe the engine temperature carefully especially during long climbs. If you notice overheating, pull off the road and allow the engine to cool off thoroughly before you continue. Fill the radiator with coolant if necessary.

b. **Descending a Hill:**

It is a good idea to select a lower gear on your transmission when descending a hill to avoid prolonged application of the brakes. Extended application of the brakes can cause unnecessary wear, tear and overheating.

Under extreme conditions this could cause you to lose control of the vehicle.

A STANDARD RULE OF THUMB:

Use the same lower gear position when descending a hill as you used while climbing the hill.

7. **Travel Speed:**

It is difficult to recommend the correct travel speed for all conditions and situations. We can only say that you should not exceed a speed that is safe for your particular conditions. In general, drive slower than the posted maximum speed limit just to be safe.

Faster speeds require much longer stopping distances and adversely affect vehicle stability. The requirement to stop or make emergency manoeuvres or turns at high speed can lead to loss of vehicle control.

Slow down before making turns. Reduce the need to aggressively apply the brakes when making turns. The trailer can push on the tow vehicle when the brakes are applied in turns and cause jackknifing.

Slow down - be safe.

8. **Windy Conditions:**

Meeting, passing or being passed by large vehicles can create a large gust of wind that will affect the handling and control characteristics of the vehicle. This can be severe in strong cross wind conditions.

Slow down to reduce the chance of losing control. Drive at a speed where you have full control and feel comfortable driving. In very severe conditions, it may be necessary to wait until the winds die down.

9. **Cruise Control:**

It is recommended that you not use the cruise control on the tow vehicle. It can interfere with your response in an emergency and affect vehicle stability.

10. **Vehicle Sway:**

Trailer sway is the most common adverse

handling characteristic that a driver can encounter. Sway can become very severe at high speed and lead to loss of control of the vehicle itself. Many external conditions can lead to vehicle sway (such as cross winds, wind gusts from other vehicles, etc.) that the driver has little control over. However in certain conditions, quick movements of the steering wheel can start the vehicle swaying.

Follow these procedures to stop or reduce vehicle sway:

- a. Hold the steering wheel in one position. Because of the time lag between sensing vehicle position and corrective steering, it is common for steering to aggravate the swaying condition. In many cases, vehicle control will be regained by just holding the steering wheel stationary.
- b. Slow down quickly but gradually. Do not slam on the brakes to slow down. This will cause the trailer to push hard on the back of the tow vehicle and aggravate the sway condition. In severe or slippery conditions, this can cause the unit to jackknife and you will lose control. Carefully apply the trailer brakes to slow the vehicle and keep the unit aligned.
- c. If there is a sudden change in control or handling of the vehicle, slow down quickly but gradually and stop as soon as possible, out of the way of other vehicles or off the roadway. Check all major systems or components to be sure no failures or problems have occurred. Check tire pressure, sway control, hitch spring bar, lug nuts and load shifting. Determine the cause of the change in stability and correct before continuing. If you cannot determine the cause of the change, travel to an authorized service centre to obtain help. Do not exceed a safe travel speed.

11. **Vehicle Spacing:**

Always allow extra space between you and the vehicle ahead to provide the extra distance required for stopping. The heavier vehicle requires more distance to stop safely than the tow unit alone. Do not tailgate.

Always allow extra space and distance when passing another vehicle. A longer distance of clear road is required for the vehicle to get up to speed to pass another vehicle. Go further past the other vehicle to provide space for the trailer to clear the other vehicle. If space and/or distance are questionable, do not pass.

5.4 PARKING

Parking the unit can easily and conveniently be done by any driver by remembering the following items:

1. **Parking on the level:**

- a. Provide extra clearance to the side for side mirrors to clear adjacent vehicles, signs, posts, poles, etc..
- b. Provide extra length to clear other vehicles when parallel parking.
- c. Always place the tow vehicle transmission in Park (automatic) or low/reverse (manual) and set the park brake.

3. **Parking on a slope (leaving):**

- a. Apply tow vehicle brakes and start engine.
- b. Shift transmission into gear and move far enough to remove weight from the chocks.
- c. Apply tow vehicle brakes.
- d. Have someone remove chocks from the trailer tires and stow in one of the luggage compartments so they will be available the next time they are needed.
- e. Drive away when your assistant is clear.

IMPORTANT

Follow these parking procedures in all conditions.

2. **Parking on a slope (stopping):**

Although parking on the level is recommended, there are times when that is not possible. However always park on as level an area as possible. Follow this procedure when parking on a slope:

- a. Position the vehicle where desired and apply the brakes on the tow vehicle.
- b. Have someone place chocks or blocks on the downhill side of the trailer wheels.
- c. When your assistant is clear from the unit, slowly release the tow vehicle brakes until the trailer tire chocks take up the trailer weight.
- d. Again apply the parking brake of the tow vehicle.
- e. Place transmission into Park (automatic) or low or reverse (manual) and turn engine off.

IMPORTANT

Be sure to rest trailer weight against chocks before placing automatic transmission in Park to prevent difficulty in shifting out of Park when leaving.

5.5 WHEELS/TIRES

The wheel, tires and associated components transmit and carry the weight and load between the trailer and the road surface, a long acceptable operating life for these components requires that they be maintained in good condition at all times.

Always follow these common sense maintenance items to keep these components in top condition.

1. Tires:

a. Pressure:

Trailer tires normally carry more load than a standard passenger car tire. Air pressure allows the tire to carry the required load. As a result, the tires must always be inflated to their specified pressure. Every user should equip their trailer with an accurate hand-held tire pressure gauge and check the tire pressure at the start of each travelling day. Always check the tires when they are cold to obtain a meaningful reading and bring them to the specified pressure molded into the tire sidewall. Tire pressures can increase significantly as their temperature rises while travelling and give erroneous results.

Improperly inflated tires can cause problems. These problems included but are not limited to:

i. Under-inflation:

- Poor handling characteristics.
- Increases tire temperature due to sidewall flexing.
Tires that overheat have a shorter life.
- Transfer more load to other tires that can cause them to be overloaded and increase their temperature.
- Poor tread wear characteristics.

ii. Over-inflation:

- Poor handling characteristics.
- Poor tread wear characteristics.
- Increased tire temperature from carrying extra load.

b. Tread:

Each trailer is equipped with tires made by a major tire manufacturer. The tread is designed to provide long life and good handling characteristics in all types of conditions. The tires should provide many thousands of travelling miles before they require replacing.

Check the condition of the tire tread at the start of each travelling day when checking tire pressure. Uneven tread wear on one or more tires indicates a problem with the running gear components such as suspension, alignment, rims, etc.. Always determine the cause of the unusual wear pattern. Take the unit to an authorized service shop for repairs if required and correct the problem before continuing.

2. Rims:

Each trailer is equipped with heavy duty rims to carry the heavier weight and side loads encountered on a trailer. Tandem axles do not steer. As a result, they are pulled sideways whenever the trailer goes around a corner. In tight turns, they are literally dragged sideways as the corner is made.

This side load will cause stress to the rim and mounting bolts. Over time the wheel bolts can stretch and retorquing is required.

If the wheel bolts continue to come loose, it is recommended the rim and bolts be replaced. Loose bolts can be caused by oblong mounting holes and the only way to correct this condition is to replace the rim.

3. Wheel Bolts/Lugs:

The tires/rims are secured to the axle with wheel bolts/lugs. Wheel bolts/lugs must always be maintained at their specified torque of 70-90 ft-lbs. at all times. It is recommended that you carry a torque wrench to make it convenient to check the wheel bolt/lug torque.

Be sure to remember these recommended procedures:

a. Break-In:

When the trailer is new, retorque the wheel bolts after 5, 50, 250 and 1000 miles to insure that they are tight. Then, retorque every 2500 miles.

b. **Wheel Replacement:**

No matter how careful a driver you are, tire leaks, punctures and blow-outs do occur. When this happens, the tire must be removed and repaired or replaced. Remove the tire yourself or have an authorized repair shop remove the wheel for you. They have the proper jacks and tools for the job. If you remove the wheel yourself, be sure to follow all standard safety considerations.

c. **Torque Sequence:**

The wheels on your trailer can be equipped with 5 or 6 bolt hubs depending on the model. It is important that the proper torquing sequence is followed to obtain an even seating on the hub. Follow this tightening sequence whenever installing or retorquing a wheel. Repeat the retorquing mileage sequence after installing a wheel the same as that defined for break-in above. Be sure, retorque per these recommendations.

4. **Flat Tires:**

Although everyone strives to drive in a way that minimizes the chance for driving over a road hazard and causing a flat tire, tires do go flat.

a. **Stationary:**

Besides an inconvenience, tires that go flat while the trailer is stationary create few problems. If you have the proper tools and know-how, change your own tire and get it repaired. Be sure to follow the bolt torquing sequence specified for the 5 or 6 bolt hub. Retorque per the break-in procedure to be sure the bolts seat and stay tight.

b. **Moving:**

If the unit is moving when the tire goes flat, follow this procedure:

- Carefully and gradually decrease speed.
- Gently apply the brakes.
- Keep both hands on the steering wheel to maintain control.
- Drive to a safe place off the side of the road.
- Park on a firm level spot if possible.
- Set park brake, turn on hazard flashers and stop engine.
- Set out flares or reflectors to alert other drivers as required by the conditions.
- Change or have tire changed.
- Torque wheel bolts per specified sequence.

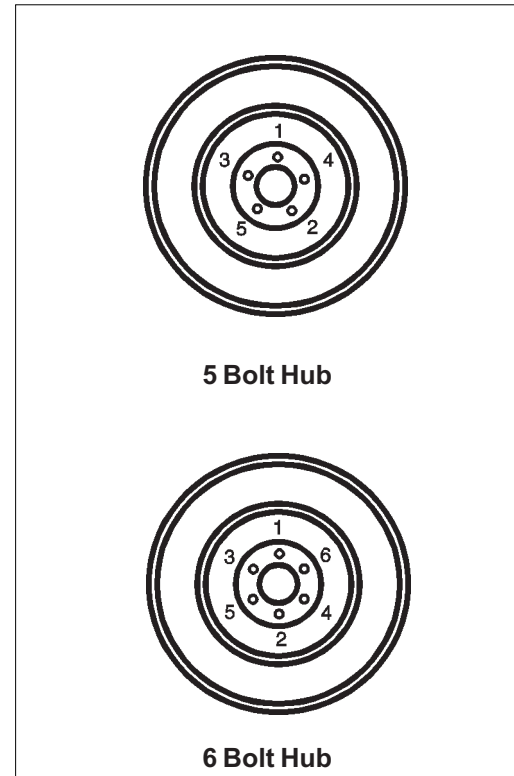


Fig. 5-1 TORQUING SEQUENCE

- Retorque wheel bolts per break-in recommendations.



5.6 BACKING-UP

To new drivers, backing up can be very difficult. However by following some general guidelines and a little practice, you can become quite adept at backing your trailer.

Follow these guidelines when learning to back-up:

1. Drive to a large open area (field, parking lot, etc.) and stop with the unit in a straight line.
2. Set the side rear view mirrors so you can see back past both sides of the trailer.
3. Grasp the bottom of the steering wheel while backing up. The bottom of the steering wheel will go in the same direction as the trailer.
4. Back up slowly and carefully.
5. Turn the steering wheel in the direction that you want the trailer to go.
6. Look through both side mirrors to monitor the position of the trailer.
7. Use a spotter on the drivers side to help direct you when backing up in tight congested areas.
8. Keep the trailer angle as small as possible while backing. If the angle becomes sharp, stop and pull forward to straighten out. Then resume backing up.

With a little practice and patience, you will be able to back-up easily. A spotter is always recommended to see behind the trailer while backing up.

5.7 TRAVEL TIPS

As you travel with your trailer you will learn much from your own experiences. Share with other trailer owners and learn from them. Read RV, outdoor and camping magazines for camping and travel tips. Here are a few basic suggestions to make your travel and your camping easier and more enjoyable:

1. Know the height and width of your trailer. Make adequate allowance for clearance.
2. Always fill your water tank with clean, fresh, potable water. Do not use a new hose to fill the tank. It may leave a taste of rubber or vinyl.
3. Conserve water especially when showering. The holding tanks have a limited capacity.
4. Dump sewage only at approved dumping sites.
5. Store all liquids in plastic containers with tight seals.
6. Watch the levels in your holding tanks. Dump regularly to avoid unnecessary build-up and potential odor. After dumping, make sure to add water to the black water tank to prevent solids from settling in the tank. Without adequate liquid in the black water tank, dumping can be difficult, if not impossible.
7. Sleeping bags are a good idea. They take up less storage space than regular bedding and they save on laundry while travelling.
8. Make sure all compartment doors, refrigerator and freezer doors are closed securely. Open these doors carefully after travelling. The contents may have shifted while travelling.
9. Reserve campsites in advance to avoid disappointment.
10. There are legal restrictions in some jurisdictions regarding vehicles with LP gas containers driving through highway tunnels. Plan your route carefully for your travelling enjoyment.
11. Be careful not to leave odor-causing food or materials in your trailer for extended periods of time. Make sure wet clothing and towels are dry before storing.
12. Make sure your fire extinguisher is ready for use and that you know how to operate it.
13. Try to shop for groceries before you "set up camp". This will allow you to relax and not have to leave your campsite after you have set up.
14. While driving, use your mirrors to determine whether you are crowding the center line or the outside edge of the highway. Remember, you are driving a vehicle that requires a driving style quite different from driving the family car.
15. When backing the trailer, have a person stand to the rear on the driver's side to guide you.
16. Do not allow passengers in the trailer when travelling.
17. While travelling, **make sure** all doors are closed and that cabinets, drawers, and loose objects are secure.
18. Instruct your family on what to do in case of fire, and hold fire drills periodically.
19. Gas and smoke detectors should not be obstructed and should be in working order at all times.
20. Keep a well stocked first aid kit handy.
21. Keep a tool box handy.
22. Check tires often while travelling. Make it a habit to check tire pressures before each trip, and each time you refuel.

5.8 QUICK LOADING CHECK-LIST

1. **Bedding:**
 - a. Sleeping Bag
 - b. Sheets
 - c. Pillow Cases and Pillows
 - d. Mattress Pads
 - e. Extra Blankets
 - f. Laundry Bags
2. **Cooking:**
 - a. Can Opener
 - b. Bottle Opener
 - c. Aluminium Foil
 - d. Matches
 - e. Plastic Bags
 - f. Coffee Pot
 - g. Storage Dishes
3. **Cleaning:**
 - a. Scouring Pads
 - b. Cleanser
 - c. Glass Cleaner
 - d. Dish Soap
 - e. Sponge
 - f. Laundry Soap
 - g. Cleaning Rags
 - h. Paper Towels
 - i. Garbage Bags
4. **Bathroom:**
 - a. Bath/Hand Soap
 - b. Bath Towels/Beach Towels
 - c. Toiletry Kits
 - d. Tooth Brushes/Toothpaste
 - e. Shaver/Razor
 - f. Toilet Tissue
5. **Baby Needs:**
 - a. Car Seat/Child Restraint
 - b. Portable Crib
 - c. Play Pen
 - d. Mattress Pads
 - e. Extra Blankets
 - f. Laundry Bags
6. **Personal:**
 - a. Credit Cards
 - b. Traveller's Checks
 - c. Cash
 - d. Driver's License
 - e. Birth Certificate
 - f. Sunglasses
7. **Pet Needs:**
 - a. Food
 - b. Leash
 - c. Feeding Trays
 - d. Vaccination Record
8. **Miscellaneous:**
 - a. String
 - b. Clothesline
 - c. Insect Repellent
 - d. Tape/Masking/Duct
9. **Additional Items as per Individual and Personal Tastes and Needs:**

5.9 SEVERE WEATHER INFORMATION

As a trailer traveller you will find the desire to explore new and out-of-the-way places irresistible. These recreational areas can be vulnerable to unusual and severe weather conditions that could endanger your safety. A few suggestions and safety precautions may help you in this situation.

IMPORTANT

All trailer occupants should be familiar with these safety precautions and be alert to changes in the weather.

1. Be alert! Thunderstorms and heavy rains can occur suddenly and unexpectedly. Listen frequently to weather reports for the area in which you are camping or travelling.
2. When camping near a stream or any body of water leave plenty of space between your trailer and the stream.
3. Avoid canyons or dry washes during threatening weather. Prepare with an alternate exit. Move to higher ground as soon as it starts raining.
4. Should you get caught in a flash flood, do not attempt to move your vehicle. Abandon it and return to it only after the water has gone down. Never attempt to drive through any flooded area.
5. Heed the warnings and instructions of local authorities.
6. Have on hand enough survival supplies for several days. This should include food, water, first-aid supplies and necessary medications.
7. When you leave home, inform someone of your destination and your schedule. Notify the same people if and when your plans change.
8. **Remember These Terms:**
 - a. **Weather Watch:**
Severe weather may develop in your area. Be prepared for an emergency.
 - b. **Weather Warning:**
Severe weather is occurring or is imminent. Find a safe location immediately.

It is always a good idea to listen to weather information on your radio or TV so that you will not be caught unaware if and when there is a sudden change in the weather.

6 CONTROLS

It is the responsibility of each owner, operator, driver or user to be familiar with the positions, functions and settings of all controls. Each new person should be trained in all aspects of trailer operation prior to starting. Review this section as often as required to understand the controls. Contact your dealer if you have any other questions.

6.1 ENTRY

The entry doorway left wall is equipped with a switch panel that controls the following functions:

1. **Left Porch Light:**

This 2 position rocker switch controls the power to the left outside porch light. Depress the upper portion of the switch to turn the porch light on and the lower portion for off.

2. **Right Porch Light:**

This 2 position rocker switch controls the power to the right outside porch light. Depress the upper portion of the switch to turn the light on and the lower portion for off.

3. **Interior Light:**

This 2 position rocker switch controls the power to a trailer interior light. Depress the upper portion of the switch to turn the light on and the lower portion for off. The switch on the light must be in the 'on' position.

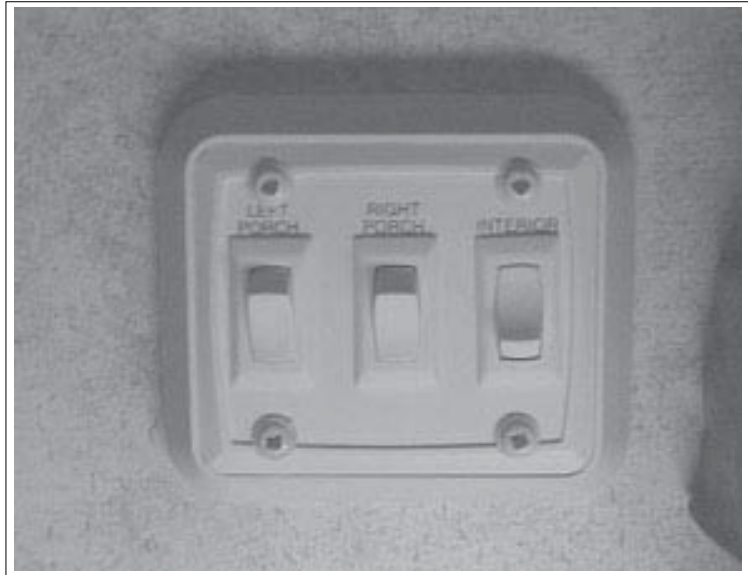


Fig. 6-1 ENTRY

6.2 ENTERTAINMENT CENTER (OPTIONAL)

On some models, an optional entertainment center can be installed in the front cabinet. Refer to the instruction manual in the information package for more details.



Fig. 6-2 OPTIONAL ENTERTAINMENT CENTRE

6.3 REFRIGERATOR

The refrigerator control panel is located directly above the unit and includes switches and several indicator lights.

1. Master ON/OFF Switch:

This latching push button switch controls the power to the refrigerator. Depress the switch and it will latch in the depressed position for the power to be on. Depress the switch again to unlatch it and turn the power off. The switch will be in its up position.

IMPORTANT

The control panel operates on 12 volt DC power. This requires the trailer battery to be at full charge for proper control.

2. Mode Selector Switch:

This push button switch selects which power source will be used to operate the refrigerator. Depress the switch once to select the AUTO mode and the AUTO indicator light will be lit.

- a. If 120 volt power is available, the AC circuit will operate the refrigerator.
- b. If 120 volt power is not available, the GAS indicator light will come on and the LP gas system will power the refrigerator.

IMPORTANT

If the CHECK indicator light comes on and the GAS indicator light doesn't come on, the burner has failed to ignite, turn the system off and then on again to light the burner.

Depress the switch again to select the GAS mode and the LP gas system will provide power to the refrigerator. The GAS indicator light will come on. Refer to IMPORTANT above if the CHECK indicator light comes on.

Refer to the refrigerator operator's manual in the information package for more detailed instructions.

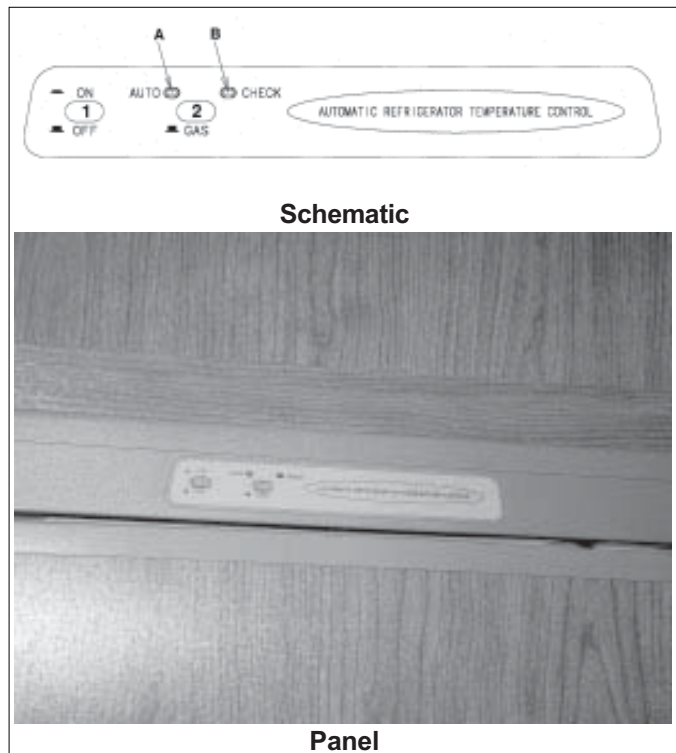


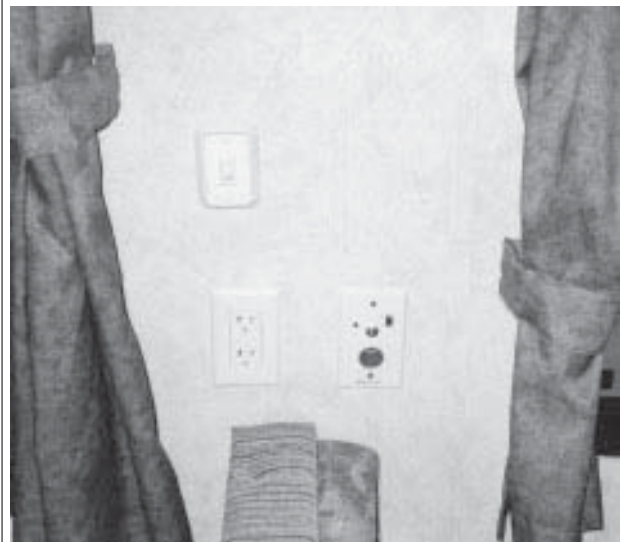
Fig. 6-3 REFRIGERATOR CONTROL PANEL

6.4 LIGHT SWITCHES

Many rocker, slider or standard light switches are used throughout the trailer to turn lights on and off. If there is any confusion as to which switch and light work together, try the switch.



Hallway



Wall

Fig. 6-4 LIGHT SWITCHES (TYPICAL)

6.5 COMFORT CONTROL CENTER (WITH AIR CONDITIONER OPTION)

A comfort control center is located in the trailer (living area or bedroom) to control the heating and cooling systems in the vehicle. The control center is customized to the specifications of your vehicle and will control the furnace and air conditioner.

Review the operator's manual in the information package for detailed operating instructions. The control functions include:

1. **Mode Switch:**

This 3 position sliding switch sets the operating mode for the comfort appliances. Move the switch fully up to operate the cooling (air conditioner) system and fully down for heating (furnace) system. Place the switch in the centre to turn off.

2. **Fan Switch:**

This 2 position sliding switch sets the operating mode for the fan. Move the switch up to turn off and down to set in the automatic mode. In the automatic mode, the fan will run whenever one of the comfort appliances is operating.

3. **Fan Speed:**

This 2 position sliding switch sets the operating speed of the fan. Move the switch down for low speed and up for high speed.

4. **Thermostat:**

This sliding switch sets the ambient temperature for the comfort appliances. Slide the switch to the desired temperature.

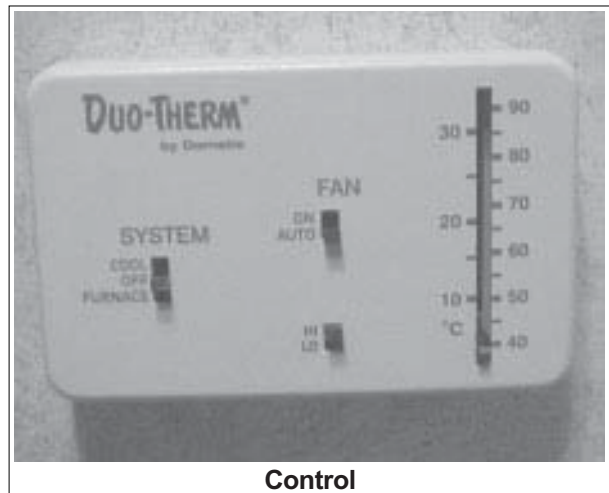


Fig. 6-5 COMFORT CONTROL CENTER

6.6 FURNACE

Each trailer is equipped with a furnace that is controlled by a thermostat or by the optional comfort control center. Review the operator's manuals for the furnace and comfort control centre in the information package for more detailed operating instructions.

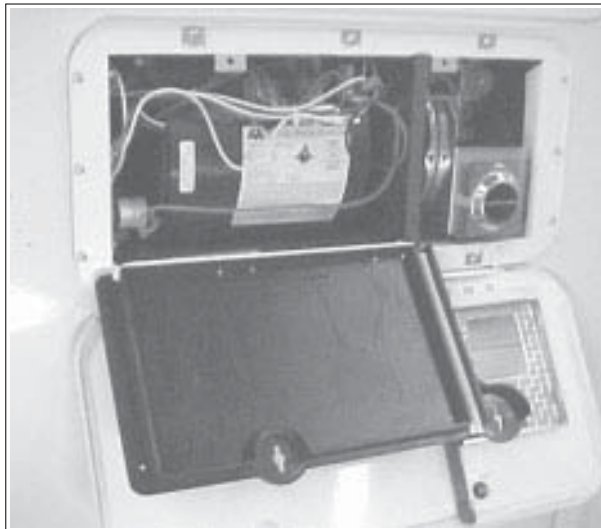
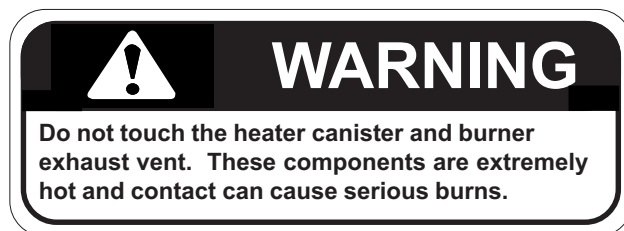


Fig. 6-6 FURNACE



6.7 ROOF VENT

Each trailer is equipped with a roof vent. The system can be a simple vent or an optional vent with a reversible fan to provide a controlled air flow through the unit. Use the vent fan in conjunction with an open window to provide a flow of fresh air into the unit. Use these controls:

1. **Non-Powered:**

The vent is equipped with a rotary handle to open or close the vent. Turn clockwise to close the vent and counterclockwise to open.

a. **In/Out:**

This rocker switch controls the rotational direction of the fan in the vent. Depress the IN side of the switch for the fan to draw air into the trailer. Depress the OUT side for the fan to blow air out. The fan must always come to a complete stop when changing directions.

b. **ON/OFF Fan Speed:**

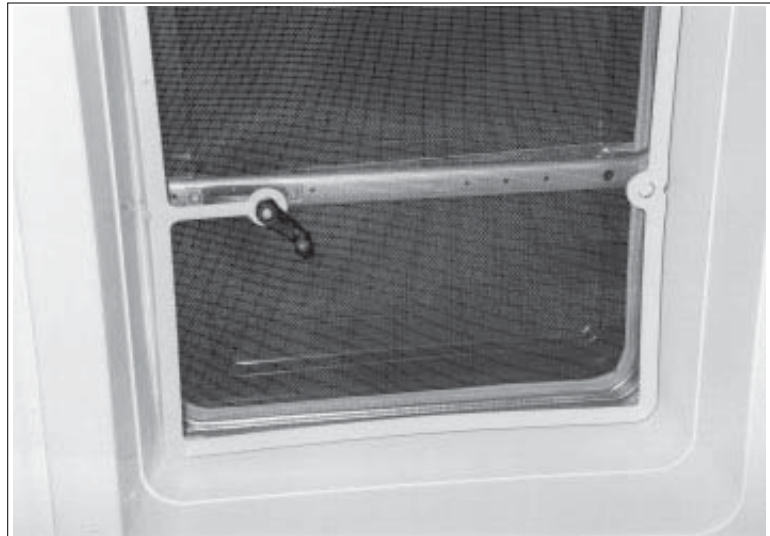
This 4 position rotary switch controls the power to the fan and the fan speed. Turn the switch to its most counterclockwise position to turn the fan off. Turn the switch to its first, second or third clockwise detents (Position 1, 2 and 3 respectively) to set the fan speeds at low, medium or high. The roof vent must be open at least 3 inches or the internal safety switch will prevent the fan from coming on.

c. **Vent Height:**

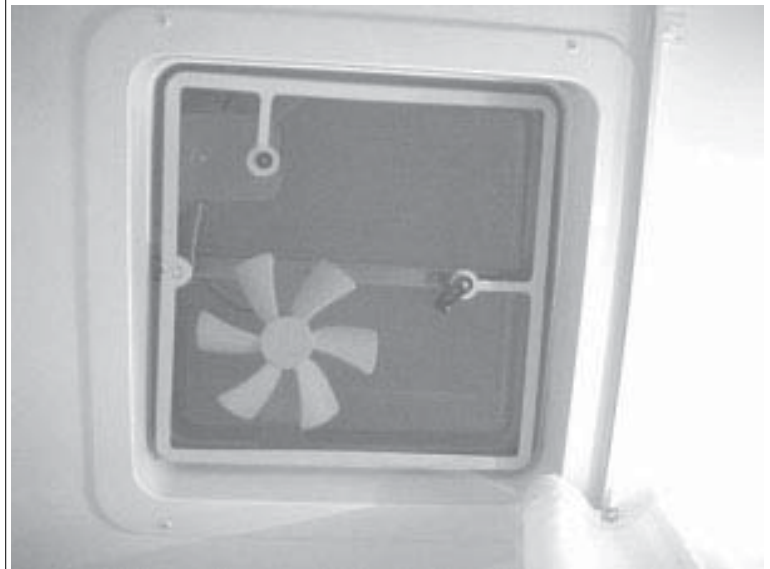
This knob controls the position of the vent hood. Turn the knob clockwise to pull the hood down and close it. Turn counterclockwise to raise or open the hood.

d. **Thermostat (Not Visible):**

This rotary switch controls the set point for



Non-Powered



Powered (Optional)

Fig. 6-7 ROOF VENT

the system thermostat. Turn the knob to the desired position. Moving the pointer to the red portion of the scale will increase the temperature of the set point for the vent fan to come on. To operate, the vent must be open and fan switch turned to either in or out.

NOTE

The FS320TE is equipped with a remote switched power vent in the lavatory. Please refer to its own instruction manual.

6.8 WATER SYSTEM

A trailer water system consists of a fresh, grey and black water system plus a water heater and plumbing. Be sure to review, understand and follow all operating instructions for the system.

6.8.1 WATER HEATER

The water heater is located next to an outside wall and is only accessible from the outside. Water heaters are designed to operate using either LP gas or 120 volt electric power. Both electric and gas power sources require water in the tank before starting to heat water or the element will burn out.

To select electric power:

1. Open water heater access door on the side of the vehicle.

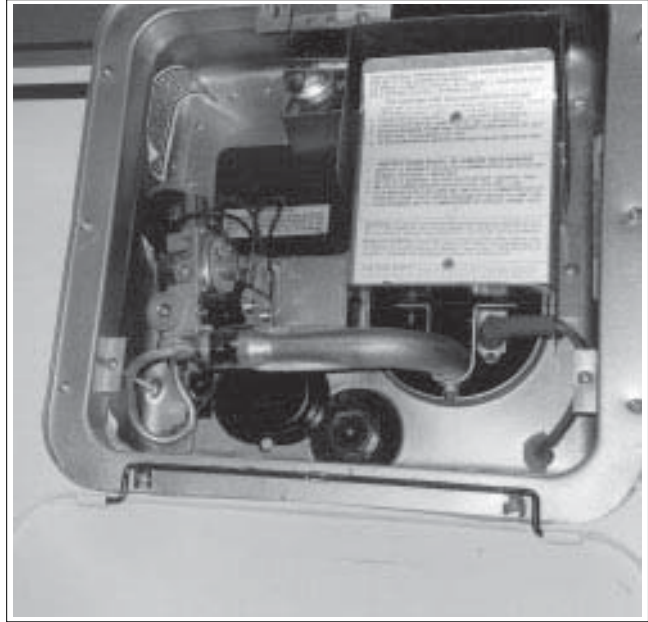
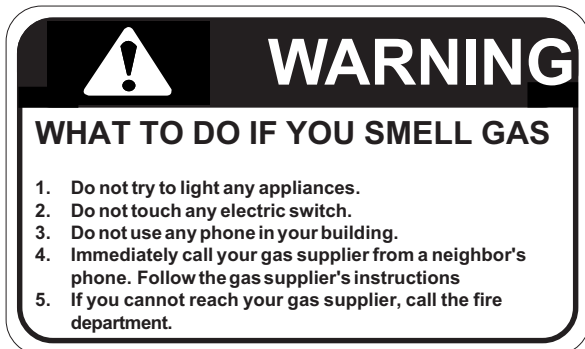


Fig. 6-8 WATER HEATER



2. Remove the click pin lock through the rocker switch.



3. Depress the on portion of the switch to turn the power on to the electric heating element.

IMPORTANT

The electric water heating system will operate when turned on only when the shoreline is plugged in and there is sufficient 120 volt AC power available. If there is no or insufficient power, the system will revert back to gas to heat the water.

4. Install the click pin through the switch to lock it in place.
5. Refer to operator's manual in information package for more detailed operating instructions.

To select LP gas power only, follow the above procedure and depress the gas portion of the rocker switch. Secure with click pin.

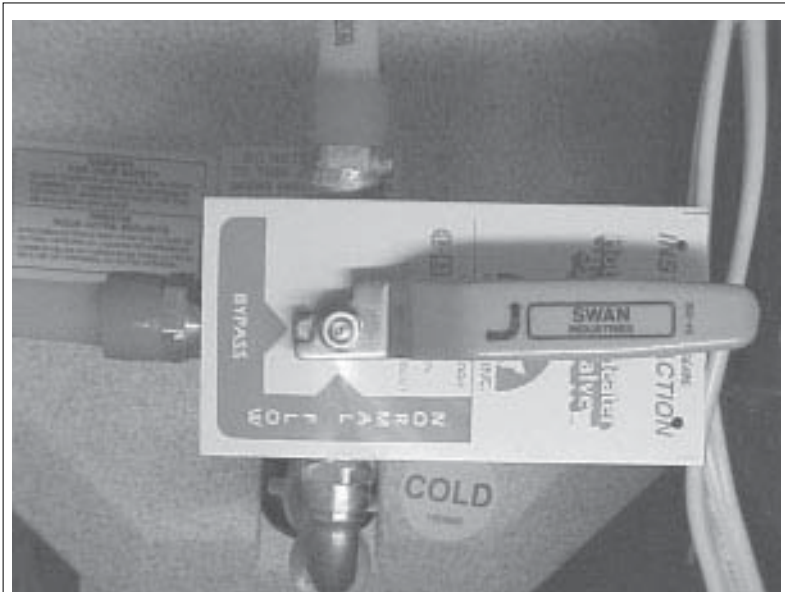
6.8.2 WATER HEATER BYPASS

The water heater is equipped with a valve that sets its plumbing circuit for normal or winterize. The valve is accessed from inside the trailer by opening the bottom cabinet next to the refrigerator. However, the location can vary depending on your specific configuration.

Watch the pointer on the pivot to determine the valve setting.

1. **Normal Operation - Horizontal Handle.**
2. **Bypass Operation - Vertical Handle.**

Refer to instruction sheet in information package for more details on winterizing procedure.



Normal



Bypass

Fig. 6-9 WATER HEATER DIVERTER VALVE

4.15.3 WATER PUMP

The water system is equipped with a 12 volt pump that pressurizes the system and moves water to where it is required. A master switch is located on the system monitor panel to turn the pump on or off as desired. In addition, the trailer can be equipped with optional auxiliary switches in the kitchen and bathroom.

Depress the switch once to turn the pump on and again to turn it off. Turn the pump on for only as long as required and then turn off to conserve battery power.

Switch locations:

1. **Master ON/OFF:**

This switch is located on the system monitor panel in the kitchen. The switch, (red indicator light) will come on when this master switch is on. This switch must be turned on for any of the other auxiliary switches to work.

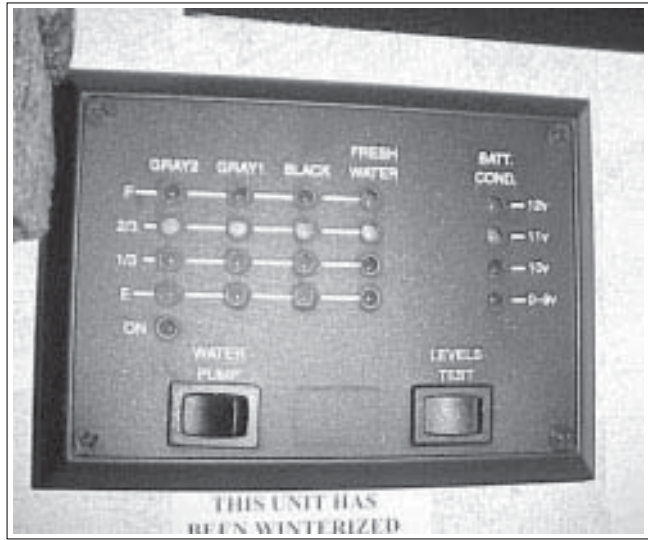


Fig. 6-10 WATER PUMP SWITCHES

6.8.4 WATER SYSTEM ACCESS

Open the access doors on the side of the trailer to access fresh water system. Use the top fitting to fill the fresh water tank. Use the bottom fitting to use city water to pressurize the system.



Doors Closed



Doors Open

Fig. 6-11 FRESH WATER SYSTEM

6.9 DISCHARGE VALVES

1. **Discharge Fitting:**

This fitting carries the discharge from the grey and black water tanks. Connect the discharge line to the fitting and route into an approved sanitary disposal system. Route the discharge hose to eliminate any low spots in the hose when discharging. Install dust cap when the discharge hose is removed.

2. **Open Black Tank First:**

a. **Grey Water Tank Valve:**

This is the discharge valve for the grey water tank. Pull out to open valve and push in to close. Always empty black water tank first and then the grey water. This procedure will use the grey water to flush out any solids left in the tank discharge plumbing and sewer hose.

b. **Black Water Tank Valve:**

This is the discharge valve for the black water tank. Pull out to open valve and push in to close. Always empty black water tank first and use the grey water tank to flush out any solids which the sewer hose left in.

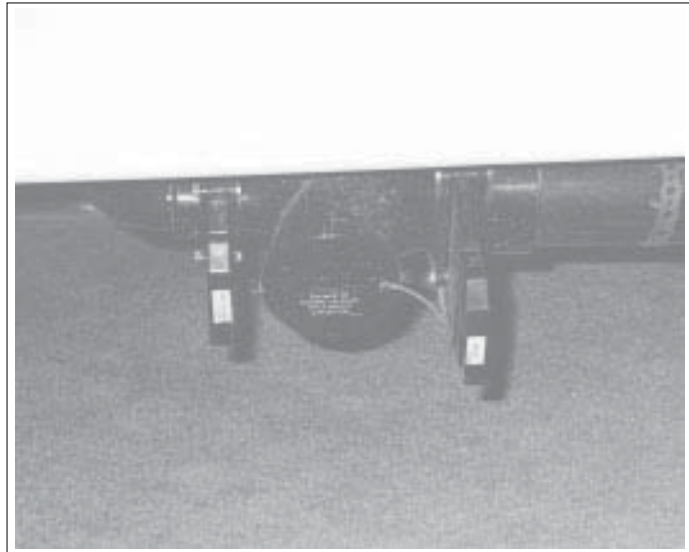


Fig. 6-12 DISCHARGE VALVES

6.10 TV ANTENNA (OPTIONAL)

Your trailer may be equipped with an extendable TV antenna on top of the unit to provide the best reception at remote locations. Always fully retract antenna whenever vehicle is moved or transported.

1. **Extending/Retracting:**

This crank controls the position of the antenna assembly on top of the roof. Grasp the crank handle mounting plate on both sides and pull down. Turn the crank clockwise to raise the antenna and counterclockwise to lower. Always fully extend or retract the antenna when it is set. Do not move or travel when the antenna is extended. If parking where debris can accumulate on roof, clean the antenna area before retracting.

2. **Rotation:**

The antenna can be rotated to align with the signal to provide the best reception. Grasp the crank handle mounting plate on both sides and pull down. Rotate the plate (antenna) until the antenna is set to provide the best TV reception. Always check the reception on a TV to know when the reception is the best.

3. **Booster:**

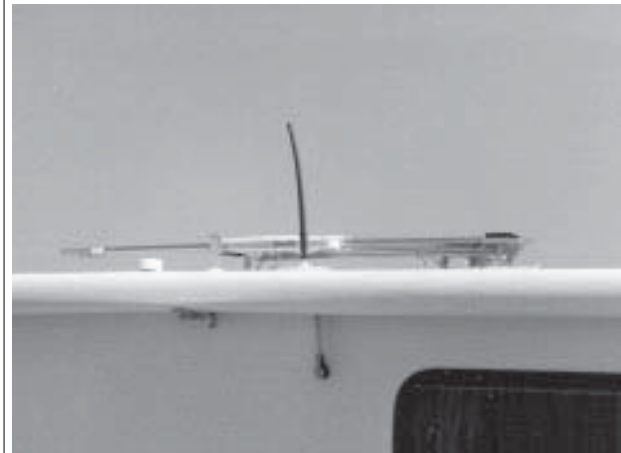
Your trailer may be equipped with a manual booster switch to amplify the TV signal received from the antenna. Flip the switch to the "on" position and the red LED light will be illuminated. Place in the "off" position when not being used.

IMPORTANT

Always turn off when not being used to prevent draining the battery.



Control



Antenna

Fig. 6-13 TV ANTENNA SYSTEM

6.11 SYSTEM MONITOR

A system monitor is located on the wall in the kitchen.

1. Status LED's:

Four LED's are used to indicate the status of the tanks and battery. The tank scale registers **EMPTY, 1/3, 2/3 or FULL**. The battery charge condition registers **12v, 11v, 10v, or 0-9v**. Read the appropriate scale when the levels test switch is depressed.

- a. **Grey 2 Water Tank**
- b. **Grey 1 Water Tank**
- c. **Black Water Tank**
- d. **Fresh Water Tank**
- e. **Trailer Battery**

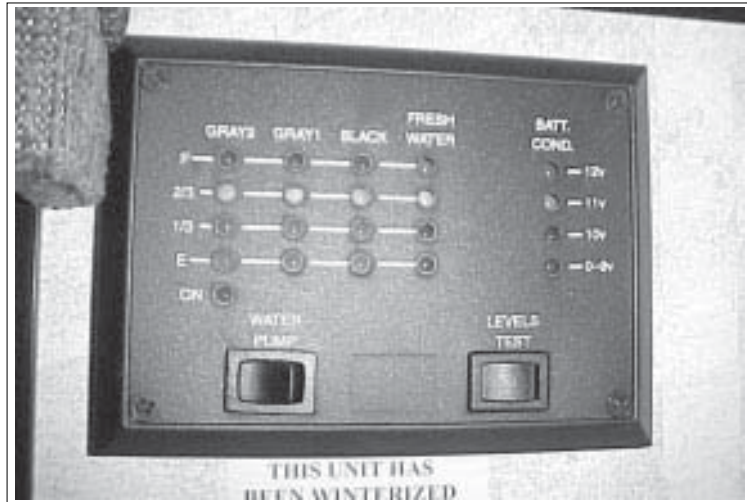


Fig. 6-16 SYSTEM MONITOR

2. Water Pump Master:

This rocker switch controls the power to the water pump. Depress the left portion of the switch to turn the power on. A red light in the switch will come on when the power is on. Depress the right portion of the switch to turn off and the light will go off. When the power is on, the auxiliary water pump switches can be used to turn the pump on and off.

3. Levels Test:

This latching push button switch controls the levels test feature of the control panel. Depress the switch once to turn the test mode on and the ON LED will come on. Monitor which LED's are on to determine the condition of the systems. Depress the switch again to turn the test mode off and the light will go off.

6.12 MICROWAVE/WATER HEATER

120-volt electric power is required to operate the microwave and can be selected to power the water heater. A selector switch located in the kitchen allows the user to direct the available electric power to the microwave oven or the water heater. There is not normally sufficient electrical power available to operate both at the same time. Normally the power is directed to the water heater except for when the microwave is being used. Since the water heater element is only on for part of the time, directing the power to the microwave only simulates an element off cycle. Always switch back to water heater when the microwave use is over.

When the power is directed to the water heater, the power monitor light comes on. When the circuit breaker trips, it will have to be reset and the reset button pushed for the water heater to function again. Determine the cause of the tripping problem and correct it before starting the heater element again.



Trailer
Fig. 6-17 MICROWAVE/WATER HEATER SWITCH

6.13 STOVE

6.13.1 LIGHTING OVEN PILOT

1. Make sure all range and oven valves are in the off position.
3. Press and turn the oven control knob to the pilot on position. This opens the gas flow to the oven pilot.

IMPORTANT

If the oven has not been used for some time it may take a few minutes for the gas to reach the pilot.

4. Open the oven door and light oven pilot. You will notice a small flame at the oven element.

6.13.2 OPERATING OVEN CONTROL

To adjust the oven temperature, push in the knob and turn it counterclockwise to the desired temperature setting. There may be a delay of 45 seconds before the burner is ignited. This is normal. To keep the oven temperature at the set temperature, the burner will cycle on and off.

6.13.3 SHUTDOWN INSTRUCTIONS

When finished using the oven, turn the oven control knob back to pilot on. The pilot light will remain on and the oven can be used at any time by simply adjusting the temperature setting.

When travelling or when the motorhome is not in use for any length of time, turn the oven control knob to off and turn off the main gas supply.



Knob

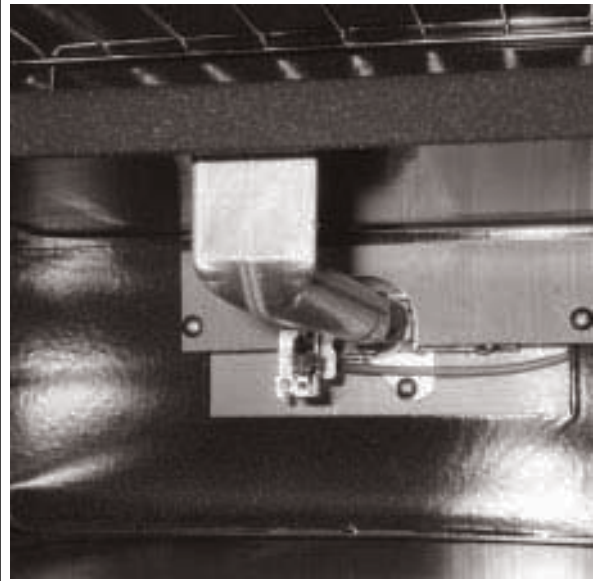


Fig. 6-18 OVEN PILOT LIGHT

6.14 MICROWAVE

Refer to the manual in the information package for operating details on the microwave.



Fig. 6-19 MICROWAVE

6.15 CABLE TV

The trailer is designed with a TV cable terminal at the rear of the unit. Remove the cover and attach the cable.

Cable outlets are provided at several locations throughout the trailer.



Exterior



Entertainment Centre



Wall

Fig. 6-20 CABLE

6.16 LANDING GEAR

Each fifth wheel trailer is designed with landing gear to support the weight of the front of the unit when the tow vehicle is unhooked. The landing gear can be lowered using a 12 volt motor (optional) or a manual crank. Open the front access door to access the switch or use the crank, always stow the crank when not in use.



Switch - Powered



Crank - Manual

Fig. 6-21 LANDING GEAR

6.17 STABILIZER JACKS

Each corner of the trailer is or can be equipped with stabilizer jacks to eliminate frame movement when the trailer is occupied.



Fig. 6-22 STABILIZER JACKS (TYPICAL)

6.18 MANUAL SLIDE-OUT ROOM CRANK

Each trailer that is equipped with an optional slide-out room, is designed with a crank to extend or retract the room manually. Use the crank to move the room manually or as a back-up if there is insufficient battery power.



Fig. 6-23 MANUAL SLIDE-OUT CRANK

6.19 HITCH LIGHT

The fifth wheel trailer kingpin area is designed with a light to assist in seeing components in the hitch area. Turn the light off when the hook-up procedure has been completed.



Fig. 6-24 HITCH LIGHT

7 HOME USE

The trailer is designed to be your home on wheels while traveling in comfort. This section will cover the items that must be done or considered in order to obtain the maximum satisfaction from your unit.

7.1 PARKING

1. **Parking:**

The trailer can be stopped and parked just like an automobile. However always remember that the unit is longer, wider and higher than a car and more room and clearance must be provided. However in most camping areas, the trailer must be backed into position to connect to services.

2. **Backing Up:**

a. **Mirrors:**

Large mirrors should be mounted on both sides of the tow vehicle cab to provide rearward visibility for the drivers. However, they do not provide visibility directly behind or on top (clearance) of the unit.

b. **Steering:**

Remember to grasp the steering wheel at the bottom when backing up. Do not turn the unit too sharply when backing up. Pull ahead to straighten out if required and try again. Refer to section 4.7 for more details.

c. **Spotters:**

The best results are obtained when another person helps guide the driver in backing the trailer/unit into position. The driver and spotter should agree to the meaning of hand signals before starting the backing process. The spotter should always be in a position that is visible to the driver while backing.

3. Always set the parking brake and place chocks in front of and behind the wheels to prevent rolling away.

7.2 TRAILER LEVELLING

If you want to use any of the appliances when occupying the trailer, it will be necessary to level the trailer frame. The refrigerator is particularly sensitive and must be within a couple of degrees of level to function properly. The tow vehicle can remain hooked up to the trailer or unhooked depending on your specific requirements. A little time and planning done prior to starting to level will insure maximum enjoyment of your trailer.

1. Inspect the area where the trailer will be parked. Select if possible an area that has a firm prepared surface. Most campgrounds provide this type of parking area for trailers.
2. Select an area that is level or as near to level as possible.
3. Use a carpenters level on the frame to determine where to place blocks to level the frame.
4. Level from side to side first. Place planks under the low side tires and drive the trailer forward until the tires are resting on the planks. Check that the frame is level from side-to-side. Add or remove blocking as required to level the frame.
5. Place chocks in front of and behind the tires to prevent trailer movement.
6. Place planks under the hitch jack (trailer) and landing gear (fifth wheel) to support the pads.
7. Unhook tow vehicle (Refer to Section 4.1).
8. Extend or retract hitch jack or landing gear to level the frame for-and-aft. Use a carpenters level to be sure.



Landing Gear



Hitch Jack

Fig. 7-1 LEVELLING

TOPAZ

9. Extend stabilizer jacks (if so equipped) to support the corners of the frame. Do not carry the weight of the trailer on the jacks. Add blocks or planks under the jacks if required to prevent sinking into soft soil.



Fifth Wheel and Trailer

Fig. 7-2 STABILIZER JACKS

10. Check that the frame is not twisted by checking that all doors, drawers, etc. open and close easily. Adjust stabilizer jacks to eliminate twisting.
11. Attach and connect all utilities as appropriate.
12. Reverse the above procedure when preparing to leave.



Fig. 7-3 SLIDE-OUT ROOM MANUAL CRANK

7.3 SLIDE OUT ROOM (OPTIONAL)

A trailer may be equipped with an optional expandable, slide out room to provide more living area for the occupants.

7.3.1 SLIDE OUT ROOM

Follow this procedure when using slide out room:

1. Be sure that trailer is properly levelled and supported with stabilizing jacks.

IMPORTANT

If the unit is not properly levelled before extending the room, the slide out mechanism may bind and be damaged.

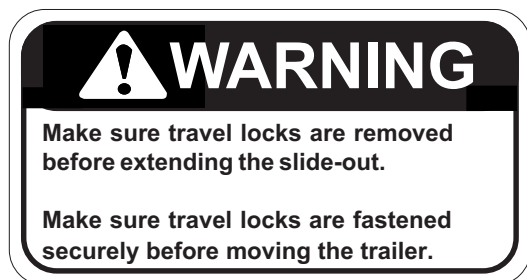


Fig. 7-4 CONTROL PANEL

2. **Before operating slide out:**
 - a. If this is the first time you are operating the slide-out, review the instructions that you received from your dealer at the time of delivery.
 - b. Level the trailer following the instructions in Section 9.2.
 - c. Make sure there is adequate space beside your trailer for the slide-out room to be extended.
 - d. Remove the travel locks (if so equipped) on slide unit.
 - e. Check the interior of the slide-out to make sure there are no obstructions on the floor or leaning against the walls. Close all cabinet doors.



Fig. 7-5 TRAVEL LOCKS (TYPICAL)



IMPORTANT

The screw shaft that extend/retract the slide-out are run by a 12-volt motor. When operating the slide-out, make sure the batteries are fully charged.

3. To Extend:

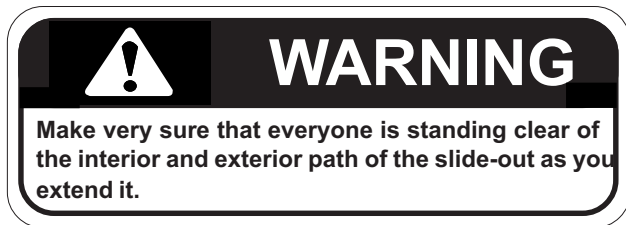
Turn the key switch to "on", press and hold the control switch until room is fully extended. Make sure it is fully extended so that all weather seals will be in their proper alignment.

NOTE

The system has an internal lead sensing capability that stops the motor when the slide-out is full in or out.



Fig. 7-6 ROOM EXTENDED



Release the control switch and turn the key switch to "off" when the room is fully extended.

CAUTION

Never move your trailer with the slide-out extended. Severe damage could result. Before moving the trailer, the slide-out must be securely retracted and all travel locks fastened.

4. To Retract:

Be sure that there are no obstructions inside or outside the trailer that would prevent easy operation. Turn the key switch to "on", press and hold the control switch until the room is back in place. Install the travel locks and prepare the rest of the trailer for travel. Turn key switch on the slide out control to the "off" position and remove the key.

NOTE

The system has an internal lead sensing capability that stops the motor when the slide-out is full in or out.

5. Set-Up:

Slide-out set-up, adjustments and re-leveling may not be included in the purchase price from your dealer. Your dealer will probably charge you for this service. Set-up by a professional, adjustments, regular maintenance and replacement of weather seals as needed will extend the life and comfort of your slide-out unit.

6. Seals:

Cracked and worn weather seals may allow moisture and dirt to enter your trailer and cause premature deterioration of the interior. Check the seals carefully in fall and in spring and have them replaced if necessary.

However, extended travel and use in severe weather conditions may cause a more rapid deterioration of some components, especially weather seals. In some extreme circumstances it could happen that these would need to be replaced outside the terms of your warranty.

7.3.2 SLIDE OUT ROOM EMERGENCY OPERATION

The slide out room can be manually retracted in case of system failure.

1. Turn key switch to its "off" position.
2. Release the extend/retract motor brake.
 - a. **Living Room:**
Remove motor access panel (under frame) and rotate lever on the back of motor 1/8 turn counter clock wise.
 - b. **Bedroom:**
Gain access under bed. Rotate lever on the back of motor 1/8 turn counter clock wise or loosen motor mounting bolts.
3. Use crank to extend or retract room as desired.
4. When room is fully extended, engage motor brake again.

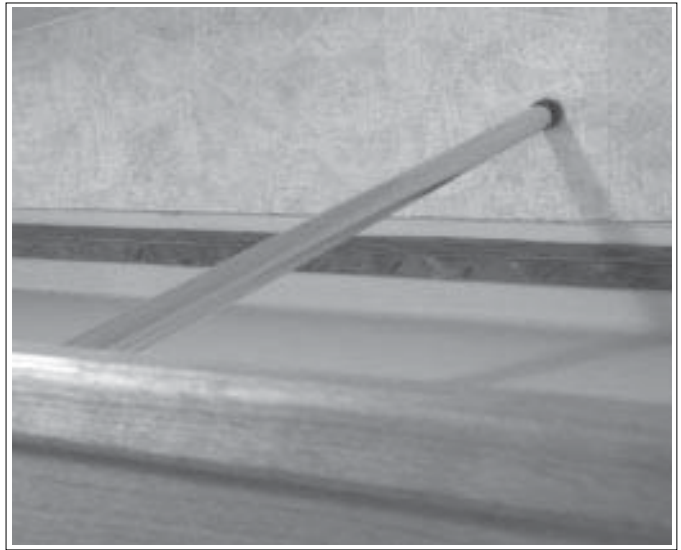


Fig. 7-7 TRAVEL LOCKS



Fig. 7-9 MANUAL CRANK (LIVING ROOM)

7.4 SLIDE OUT ROOM TROUBLESHOOTING

1. **General Maintenance:**
Always disconnect battery cable before working on slide-out system.
2. **Low Power:**
 - a. The most common cause of malfunction is low battery voltage. To ensure adequate power, take the following steps:
 - b. Connect your shoreline to an external 120-volt power source. This will activate the converter and charge the battery.
 - c. Reduce the electrical load to a minimum by shutting off all 12-volt lights and appliances.
3. **Sticking or Binding:**
 - a. If the trailer is not levelled and stabilized properly, the tracking system may bind. Make sure the trailer is level and stable. Level the trailer prior to extending the slide, to ensure it works smoothly.
 - b. If the slide-out has been in one position (retracted or extended) the seals may have a tendency to stick. DO NOT use petroleum products on these seals as they can cause premature seal deterioration.

7.5 PROLONGED OCCU- PANCY

Trailers are generally designed for recreational and short-term occupancy. In case of extended occupancy there are a few things regarding humidity and condensation that you should be aware of. Excessive moisture inside the trailer can accumulate and may damage the trailer. Moisture condensing on the windows is a sure sign that the humidity inside your trailer is too high. To reduce moisture inside your trailer we suggest the following:

1. **Ventilation:**
Provide adequate ventilation at all time, open windows and vents. This will allow fresh air to flow through and reduce the moisture content.
2. **Reduce Moisture:**
Reduce moisture released inside the trailer. Run the bathroom fan when using the bathroom and turn on the range hood fan while cooking. This will remove unnecessary moisture from your trailer. Hang wet towels and swim wear outside the trailer to dry.
3. **De-Humidifier:**
Install a de-humidifier to remove excess moisture inside the trailer. This is particularly true in cold weather. Removing moisture from the air before it condenses on a cold outside surface works best. Turning the heat up will only increase the heating load on the furnace and fuel consumption.
4. **Storm Windows:**
Install storm windows to reduce condensation on the windows and reduce heat loss.

8 SAFETY EQUIPMENT OPERATION

Triple E has made every effort to design the trailer to promote safe travel, use and occupancy. In addition, it has several pieces of safety equipment that the users should be aware of and trained in their use. Review these instructions with all new people prior to using the trailer.

8.1 FIRE PREVENTION

Fires can be started in a variety of ways including but not limited to careless smoking, malfunction of appliances or equipment, flammable material on hot surfaces, etc. Fires are best prevented rather than put out. Prevent but anticipate what to do if they occur. Review the following sections with everyone on a regular basis.

8.1.1 FIRE SAFETY TIPS

1. Establish and maintain good housekeeping practices. Never allow combustible materials to accumulate. Make sure you store flammable liquids in approved containers in a well-ventilated space.
2. Make sure you have charged fire extinguishers readily accessible.
3. Avoid using flammable products in the trailer.
4. Never smoke in bed or when relaxing on the couch.
5. Do not overload electrical outlets.
6. Do not leave cooking food unattended.
7. Keep children away from electrical outlets and LP gas controls.
8. Never use matches to check for LP gas leaks. If there is a fire, get everyone out of the trailer. If possible, use your fire extinguisher. Close all LP gas valves if possible. Call the fire department and stay a safe distance away from your unit. Do not re-enter your trailer until the fire officials declare that it's safe to do so.
9. Formulate a plan for escape from the vehicle should an emergency arise. It is particularly important that the escape plan be rehearsed with everyone, especially children, who will be using the trailer.

8.1.2 FIRE EXTINGUISHER

1. Operation:

- a. Stay at least 6 feet away from the fire and near an exit. The chemical from the fire extinguisher will shoot at least 10 feet. Stay close to the floor to avoid heat and fumes.
- b. Break the seal; grasp the fire extinguisher firmly holding it in an upright position.
- c. Press the white button. Aim at the base of the fire spraying the entire base area. Don't spray at the smoke or flames.
- d. After the fire is out, watch for "flashback".
- e. Discharge the fire extinguisher entirely and get it recharged or replaced immediately.
- f. For additional information, check in the manual that is provided with the Fire Extinguisher.

2. Function:

- a. Fire extinguishers are designed to put out a fire in its initial stages. Once a fire is out of control and you cannot get within ten feet, it is probably too big to fight with your extinguisher.
- b. Do not discharge your fire extinguisher to test it. Once it is discharged even for a few seconds it will lose pressure and become useless.
- c. Check the pressure indicator on your fire extinguisher periodically. If it loses pressure, the dry chemical cannot be discharged effectively. If the pointer does not indicate in the green, replace the extinguisher immediately. Record the inspection date on the tag provided.

Read the side of the fire extinguisher for specific information regarding regular inspections of the fire extinguisher.



Fig. 8-1 FIRE EXTINGUISHER

8.2 EMERGENCY ESCAPE

Each trailer is designed with an alternate emergency exit via a window in the sleeping area.

1. **Emergency Exit:**
Press down on the red latches of the emergency egress window and push out the window. (The egress window has hinges on top).
2. When window is not being used as an emergency exit, it functions as any other window to provide ventilation.
3. Formulate a plan for escape from the vehicle should an emergency arise. It is particularly important that the escape plan be rehearsed with everyone, especially children, who will be using the trailer.
4. Do not leave the emergency exit open while the vehicle is in motion.

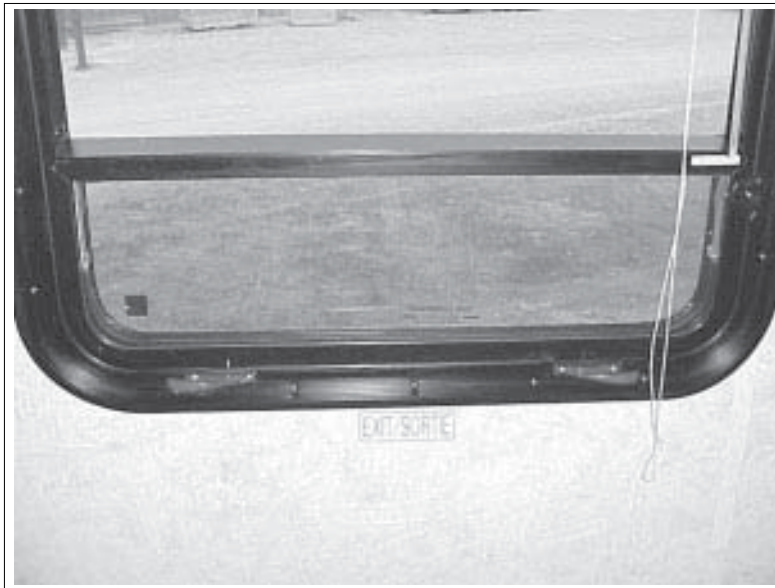


Fig. 8-2 EMERGENCY EXIT LATCHES

8.3 ALARMS

Each trailer is equipped with an LP Gas, smoke alarm as standard safety equipment. An intruder alarm as optional equipment. Refer to alarm manual(s) for more detailed instructions. Keep all alarms in good working order. Recurring alarm(s) indicate the slow accumulation of LP gas or smoke. Have an authorized service center check system and identify source. Correct problem before resuming use of unit.

8.3.1 LP GAS ALARM

This is located in the lower portion of the trailer and sounds when there is an unsafe level of gas in the air.

- a. Sounds whenever there is an unsafe amount of gas in the vehicle.
- b. Follow instructions on safety sign next to stove and air out vehicle to silence alarm.
- c. Have a qualified service man find the leak and correct the problem before using unit again.
- d. Refer to section 11, LP Gas System and alarm manual for more details.



Fig. 8-3 LP GAS ALARM (TYPICAL)

IF YOU SMELL GAS

1. Extinguish any open flames, pilot lights and all smoking materials.
2. Do not touch electrical switches.
3. Shut off the LP tank valve.
4. Open doors, windows and roof vents.
5. Leave the area until odor is gone.
6. Have the system checked for leaks and make the necessary corrections and repairs.

8.3.2 SMOKE ALARM

This alarm is located in the trailer and sounds whenever there is an unsafe level of smoke in the trailer.

- a. Sounds whenever there is an unsafe amount of smoke in the vehicle. Always use exhaust fan over the stove when cooking.
- b. Open doors, vents and windows to air out vehicle and silence alarm. Correct and eliminate smoke source.
- c. Check alarm on a regular basis. Check when removing from storage, before trips and weekly thereafter. Depress center button to test alarm electronics. Test alarm sensor by blowing smoke (from safe, fire-free source) past sensor. If alarm does not sound when testing, determine source of problem and correct or replace alarm.
- d. Do not remove battery to silence alarm. When alarm "beeps" every minute, battery is weak and must be replaced. Do not allow battery to go dead. Be sure to replace with recommended battery. Test after battery is replaced.
- e. Clean and vacuum opening on smoke alarm once a month.
- f. Do not try to repair alarm. Replace it.
- g. Smoke alarms are not perfect and do not respond in all situations. The best safeguard is fire prevention.



Fig. 8-5 SMOKE ALARM

9 ELECTRICAL SYSTEMS

Your Topaz trailer is equipped with two electrical systems operating on separate voltages - a 12 Volt DC System and a 120 Volt AC System.

The 12 Volt DC System draws its power from the trailer battery.

The 120 Volt AC System operates from the outside shoreline connection. It also provides power to the converter to provide power to the battery and all 12 volt circuits.

9.1 120 VOLT AC SYSTEM

When connected to an outside electrical utility such as that provided by most campgrounds the converter supplies 12V power and also charges the trailer battery.

Some equipment, however, depends entirely on 120 volts from an outside connection. These include:

1. Roof Air Conditioners
2. Refrigerator (when set to 120 volt)
3. Microwave Oven
4. All 120 Volt Electrical Outlets
5. Coffee Maker

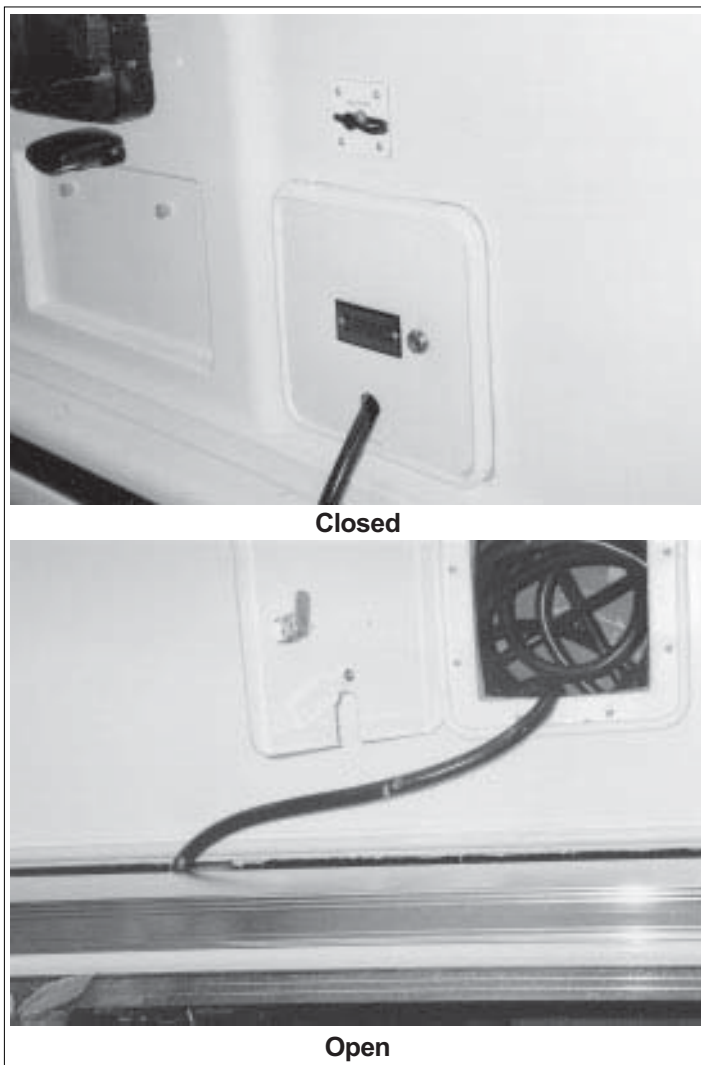



Fig. 9-1 SHORELINE STORAGE COMPARTMENT (TYPICAL)

9.1.1 EXTERNAL POWER CORD (SHORELINE)

The external utility power cord (also called the "shoreline") is stored in a compartment on the outside (location varies) of the trailer.



WARNING

Do not connect the external power cord until you have checked with the owner/attendant of the campground as to proper polarity and grounding.

Improper grounding or reverse polarity can cause component failure, injury or death.

To connect your trailer to an external power source, pull the cord through the cord hatch and plug it into the proper receptacle. Always ensure some slack is present in the cable.

9.1.2 120-VOLT CIRCUIT BREAKERS

The breaker panel protects all 120-volt equipment and components in the trailer from overload, from a short in the wiring or a short in the component itself. This cuts off the flow of electricity in the system and prevents damage or fire.

If a breaker “trips”, allow a brief “cool down” period and then reset the breaker by turning it OFF and then ON. If a breaker “trips” again and again, this could mean that there is a short in the wiring or in the equipment and both should be checked and serviced, see wiring diagram.

There is a singular 30-amp panel switch which protects the entire electrical system. Become familiar with the locations of the main 120v breaker and check it first if electrical problems should be experienced.

Refer to converter and control panel manuals for more information.



**Fig. 9-2 120-VOLT CIRCUIT BREAKERS
ELECTRICAL PANEL SHOWN**

9.2 12 VOLT DC SYSTEM

The DC voltage system in your trailer consists of the following main components:

1. The RV deep draw battery.
2. The circuit fuses.
3. Associated wiring and power circuits.

9.2.1 TRAILER BATTERY (OPTIONAL)

The trailer battery acts as a power reservoir for all 12 volt circuits in the trailer including:

1. Trailer brake-away system
2. Water pump
3. System monitor
4. Optional slide-out room motor

This battery is a “deep cycle” RV battery designed to provide power over a long period of time and to stand up under the frequent drain and recharge conditions of a camping vehicle.

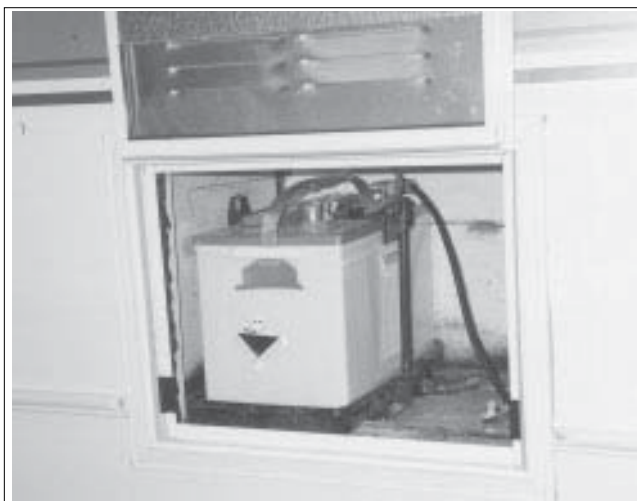


Fig. 9-3 BATTERY LOCATION

9.2.2 12 VOLT CIRCUIT FUSES

All 12-volt circuits are protected by either a circuit breaker or a fuse in the control panel. When a breaker trips or a fuse blows, shut off all electrical loads on the affected circuit and reset the breaker or replace the fuse with a new one of the same amperage. The label on the panel identifies both the fuse amperage and the applicable circuit.

The fuse panel is located next to the circuit-breaker panel, in the kitchen.



Fig. 9-4 FUSE PANEL

9.2.3 BATTERY MAINTENANCE

RV batteries are reservoirs of 12-volt electrical energy. Whenever energy is removed from the battery it has to be replaced in order for the battery to continue functioning. This energy is restored by the tow vehicle engine alternator whenever the tow vehicle engine is running or by the RV charging system when plugged into a 120-volt power source.

1. Problems:

Two conditions can destroy the function of a battery. One is called sulphating in which a layer of sulphate crystals collects on the lead plates inside the battery. This can happen when a battery is discharged and not used for a long period of time (30 days or more) especially during warm weather. This situation requires replacement of the battery. The second is freezing. A battery must be kept at almost full charge to prevent the liquid electrolyte inside the battery from freezing.

2. Prevention:

- Disconnect the battery cables during long periods of storage.
- Hook up a battery charger at least once a month during long periods of storage.

3. Long Term Storage:

If you do not intend to use your trailer for a longer period of time it might be a good idea to remove the battery from the trailer and store it in a cool dry location on a wood or rubber pad.

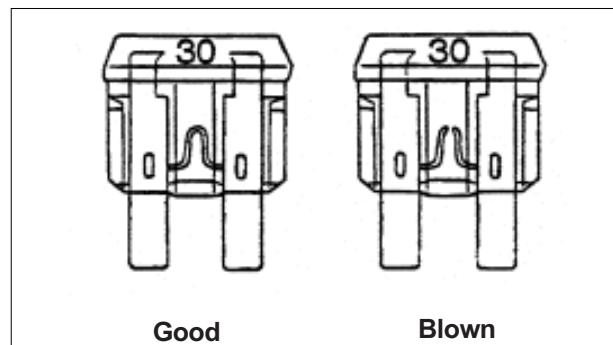


Fig. 9-5 FUSES USED IN 12 VOLT SYSTEM

4. Additional maintenance suggestions:

- Check the external condition of the battery monthly. Look for cracks in the cover and case.
- Make sure battery is always securely fastened down.
- Make sure battery clamps are tight and free of corrosion.



WARNING

Do not allow battery electrolyte to contact skin, eyes, fabrics, or painted surfaces. The electrolyte is a sulphuric acid solution which could cause serious personal injury or property damage. Wear eye protection when working with batteries.



- d. Keep the battery and terminals clean. Accumulations of acid film and dirt may permit current to flow between the terminals and discharge the battery.
- e. To clean the battery, wash it with a diluted solution of baking soda and water to neutralize any acid present, then flush with clean water. Foaming around terminals or on top of the battery is normal acid neutralization.

NOTE

Make sure you don't allow any baking soda solution to get into the battery. This can neutralize the battery acid.

- f. Dry the cables and terminals before reinstalling them, and don't use grease on the bare metal inside the cable terminals to prevent corrosion. Grease is an insulator. Electricity will not flow through it. A plastic ignition spray will protect the terminals after you have cleaned and reinstalled them.
- g. Whenever battery is removed and replaced make sure the positive and negative cables are attached to the correct terminals. (Positive to positive and negative to negative). The same is true when using a "booster battery" or a charger. If you use a "fast charger", disconnect the cables from your battery. **Do not** attempt to recharge a frozen battery.
- h. If you do not have a maintenance-free battery, check the battery fluid level and fill with distilled water if necessary. **Do not overfill.**
- i. Have the specific gravity of the battery fluid checked when you have your vehicle serviced.

9.2.4 BATTERY CONDITION METER

On your control panel you will find a gauge which tells you the level of charge in your trailer battery.

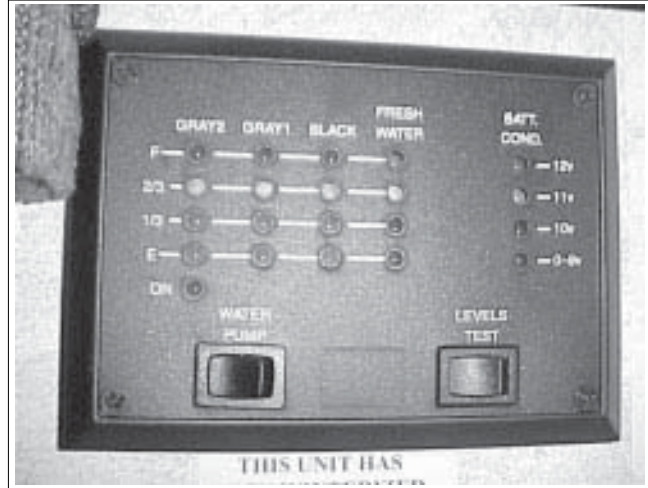


Fig. 9-6 BATTERY CONDITION METER

9.3 TRAILER WIRING CONNECTOR

Your trailer is ready for towing. It has a wiring connector plug at the front for quick hook-up.

Refer to the labeled diagram (Refer to Section 4.6 for plug wiring diagram) of the various terminals in the plug. These are standard for all 7-pin trailer plugs.



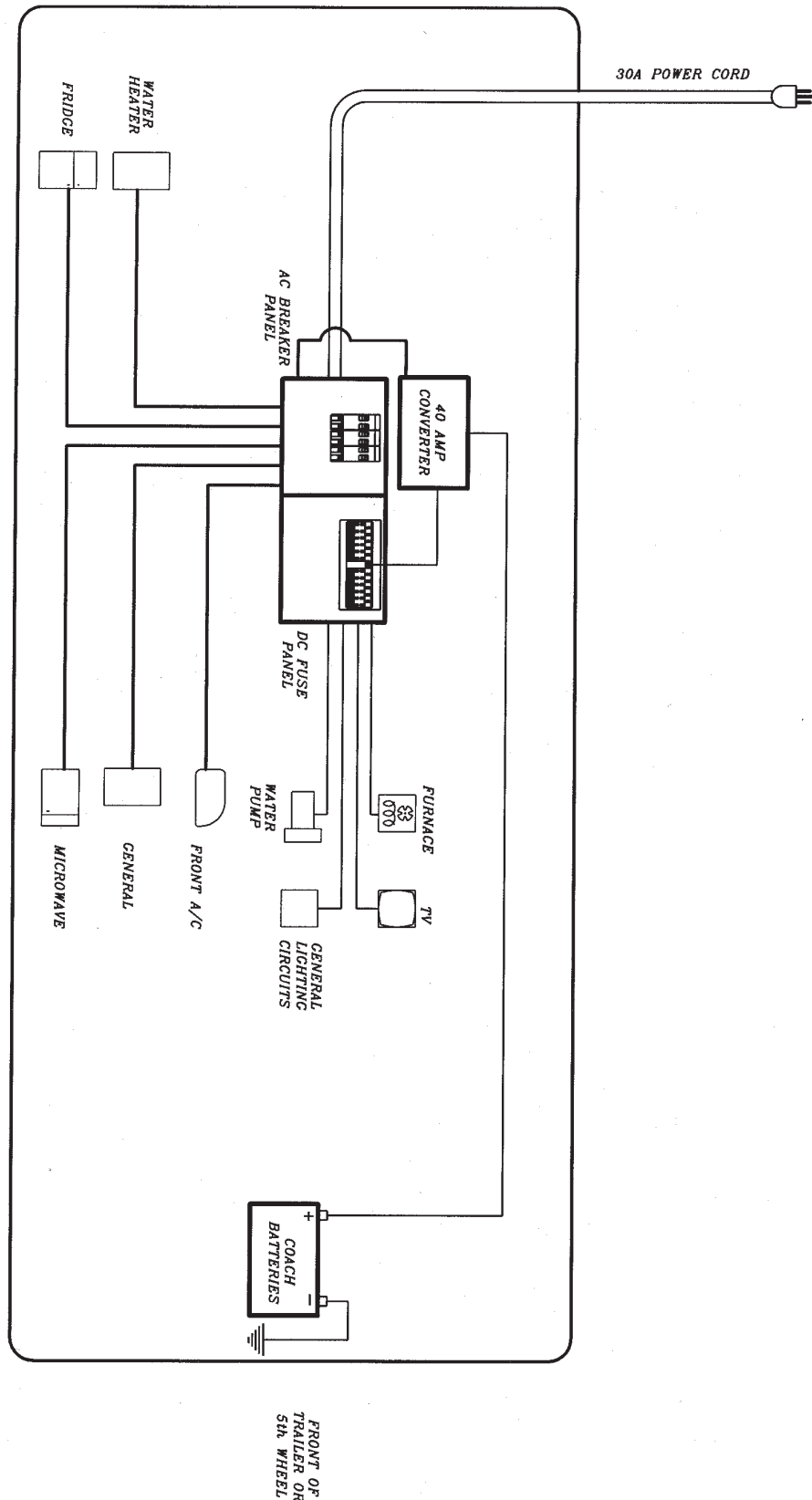
Fifth Wheel



Trailer

Fig. 9-7 WIRING HARNESS

9.4 ELECTRICAL SCHEMATICS



30 Amp Service

9.5 FUSE PANELS

9.5.1 12 VOLT DC

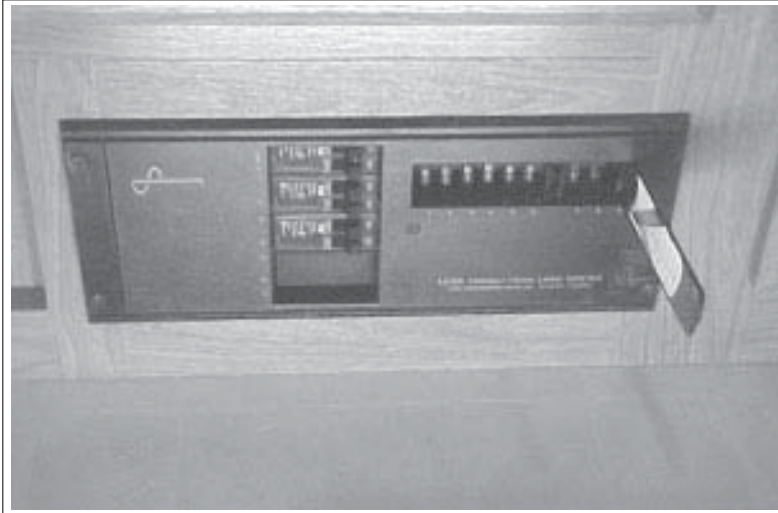


Fig. 9-8 12-VOLT PANEL

9.5.2 30 AMP AC

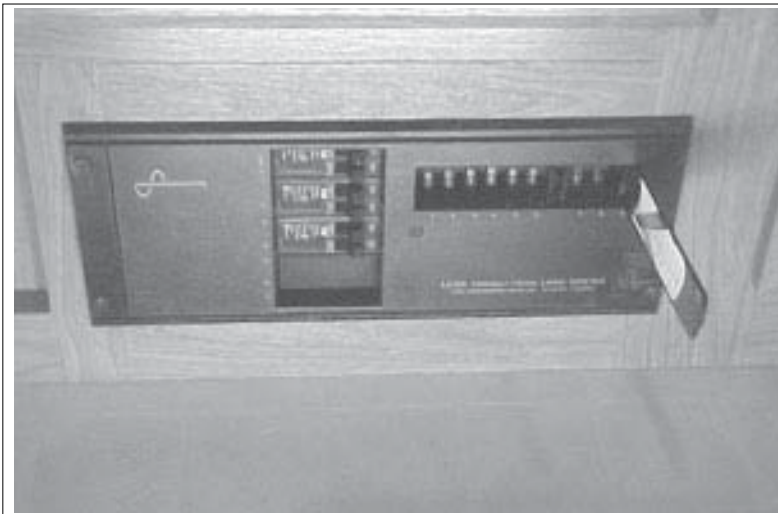


Fig. 9-9 30 AMP PANEL

10 LP PROPANE GAS SYSTEM

LP (Liquefied Petroleum) gas is a colorless gas compressed into liquid form for easy transportation and storage. It is the energy source for your range, oven, furnace, water heater, and an alternate source for your refrigerator.

It is an excellent fuel source and both safe and economical when used properly.

CAUTION

These instructions are provided as a general guideline only and may not be complete. To ensure proper service and safety, always take your motorhome to an authorized Triple E service center.

10.1 SAFE USE OF LP GAS

The LP gas system is designed and built to adhere to federal government and industry regulation requirements.

Many safety devices and backup systems have been built in to assure complete safety. Some of these include: tank overflow valves, LP gas detector, and carbon monoxide (CO) detectors. As well, LP gas contains an odor additive so that it can be more easily detected.

Observe the following precautions for the safe use of LP gas.

1. Familiarize yourself with the odor of LP gas. If you suspect a leak, turn off the LP gas supply immediately and determine the source of the leak with the help of qualified service personnel.
2. Do not tamper with any part of the LP gas system, piping or regulator. Service and maintenance should be performed only by qualified personnel.
3. **Do not use natural gas in a LP gas system.**
4. Check the entire system for leaks every time the tanks are filled. Take time regularly to inspect the system for leaks.

5. Turn off the LP gas supply valve when not using it.
6. The tank supply valve is designed to be tightened by hand only. If the valve requires a wrench for tightening it is defective and should be replaced.
7. Tanks should never be filled above the 80 % level. LP gas requires room to expand.
8. Make sure all appliance vents are open and free of obstruction when using the LP gas system.
9. Do not lock LP tank compartments. Recreational vehicle industry standards require that all LP gas valves must be readily accessible at all times in case of emergency.
10. When drilling holes in walls or attaching objects be careful not to damage any gas lines or electrical wiring.

10.2 HOW LP GAS WORKS

There are two types of LP (Liquefied Petroleum) gas - propane and butane. Both are compressed into a liquid for easier transportation and storage. Common names used are tank gas, bottle gas, or simply LP.

In the tank, LP is in the form of a liquid under very high pressure. As it is released, it changes to a vapor or gas and expands to a much greater volume.

Caution should be exercised when temperatures fall below -40 degrees C (-40 degrees F). You could be without propane at these lower temperatures.

10.3 SELECTING FUEL TYPES

Butane burns at a much higher temperature than propane but will not change from a liquid to a gas at temperatures below 32 degrees F or 0 degrees C. Propane, on the other hand, burns at a lower temperature and will continue to convert from a liquid to a gas at temperatures as low as -40 degrees F or -40 degrees C.

LP dealers will normally handle only the type of gas commonly used and suited to the climate in their area. If you travel from a warmer part of the country to a colder area you may want to check to make sure you have the right type of LP gas.

10.4 LP TANK SYSTEM

The LP gas containers are located at the front of the hitch frame for the trailer and in the front or side compartment for the fifth wheel model. They are accessible only from outside the vehicle. The tank valve is located near the top center of the tanks next to the regulator. Before opening the supply valve, make sure all controls for the various appliances are in the OFF or PILOT OFF position. This is to prevent any LP gas from leaking into the trailer.

10.5 LP TANK CAPACITY

The tank size is the approximate usable volume which is about 80% of the total tank volume.



Fifth Wheel



Trailer

Fig. 10-1 TANK LOCATION DIAGRAM

	Fifth Wheel (2)	Trailer (2)
Dual Tank Size - Gal (l)	8.5 (32.4)	8.5 (32.4)

Propane Tank Capacities

10.6 REFILLING LP TANK

The LP gas containers are located at the front of the hitch frame for the trailer and in the front or side compartment for the fifth wheel model.



WARNING

1. Never overfill the LP gas tank. Make sure your vehicle is level when filling the tank.
2. Make sure all pilot lights are OFF before refuelling any of the gas tanks on your motorhome.
3. Do not smoke or have any open flame in the area where refuelling is taking place.
4. When testing for leaks in the LP system use a soap and water solution. Never use an open flame to test for leaks.
5. Never fill the LP tank when either the engine or the generator is running.
6. Keep all protective covers and caps in place.

To refill the propane tanks, simply attach to the fill valve on the tank.



WARNING

Do not smoke when refuelling. Keep flames, sparks and smoking material away from fuel or flammable fumes.

Shut off all pilot lights and the control valve on the LP gas container when filling the container and during travel. Always refill empty LP gas container as soon as possible.

Do not overfill your LP gas container. Stop filling when liquid appears at the overflow valve. (often called a 10% valve) which contacts the liquid level at 80% of container capacity allowing 20% for expansion.

Check after each filling by opening the overflow valve and bleed gas in well-ventilated area until white liquid stops. Overfilling may cause damage to regulator and cause malfunction of LP gas appliances.

IMPORTANT

The LP tank has an automatic 80% stop-fill device to prevent over filling of the tank.



Fifth Wheel



Trailer

Fig. 10-2 LP GAS FILLING

LP gas stations are found in all parts of the country. Check with the Yellow pages in your telephone book if you have trouble finding a station. Look under "Gas-Liquefied Petroleum-Bottled and Bulk" or "Propane".



WARNING

Remind the service attendant to use the 80% overflow valve when refuelling. Space must be left in the tank for vaporization and expansion.

Never carry LP or any other flammable liquid containers in your motorhome. Gases may inadvertently be discharged into the room which could result in fire or explosion.

After tank has been filled:

1. Check all container and line connections periodically to be sure they are tight. When testing for leaks, use soapy water (never a match). LP gas has a distinct garlic odor.
2. If LP gas fumes are noticed at any time, the cause should be determined and corrected without delay. To prevent freeze-up, have methyl alcohol added to your container.
3. Before opening the control valve at the LP gas container, check that controls for all gas appliances are in the off position. If this is not done, LP gas could accumulate inside the vehicle creating a fire or explosion hazard.
4. LP gas is also potentially lethal if inhaled.

10.7 AIR IN THE LP TANK

If your LP appliances burn poorly or do not stay lit even though you are sure you have plenty of fuel, you may have air trapped in the tank. The air will eventually escape along with the LP gas but it may be necessary that you have your tank purged of air by the LP gas dealer.

10.8 TRAVELLING LP GAS

In some jurisdictions it is illegal to transport LP gas on certain roads or through tunnels. Check state or provincial regulations to make sure your trip will not be halted or impeded unexpectedly as a result.

10.9 REGULATOR

The LP tank regulator has a plastic cover to protect it from the weather. This should never be removed except by qualified service personnel.

The pressure regulator has a vent hole on the underneath side. Make sure this vent hole is open and not obstructed in any way.

During freezing weather it may happen that a regulator may freeze up. This results from a small amount of moisture in the fuel even though every precaution is taken by gas

dealers to prevent this from happening. To help avoid this situation, keep the control valve closed when not in use even when the tank is empty. This helps prevent condensation from forming. Hold a light bulb near the regulator to thaw it.



If moisture in the tank is a recurring problem, you may ask your LP gas dealer to inject a small amount of dry methyl alcohol into the tank to absorb the moisture.

Liquid Petroleum vaporizes quickly and easily at warmer temperatures. Under cold conditions this process slows down dramatically. When large amounts of fuel are required when using the furnace, for example, the fuel may not vaporize rapidly enough to keep all the appliances going at a high level. In this case you may have to reduce the consumption of fuel by lowering the temperature setting on the furnace, reduce the consumption of hot water, turn up the temperature setting on your refrigerator or switch from LP to electric where possible.

The regulator is preset. Do not attempt to adjust it. This should only be done by an authorized service outlet. The regulator should not be exposed to the elements.

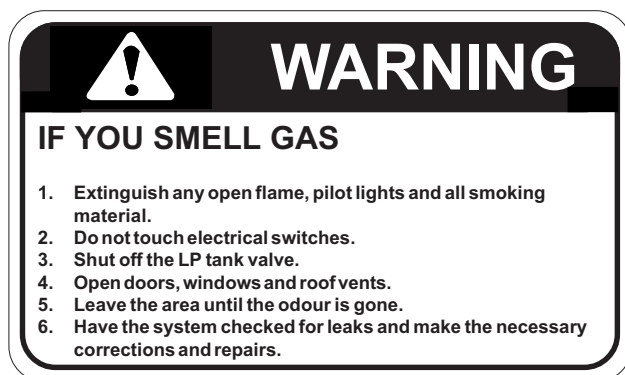
If regulator fails: LP gas container may be over-filled, or there may be impurities in the propane. Regulator failure could cause LP gas components to malfunction.



Fig. 10-3 REGULATOR (TYPICAL)

10.10 LP GAS LEAKS

Notice the label placed near the range area. If you ever smell LP gas in the vehicle or the detector alarm sounds, follow the instructions carefully.



10.11 LP GAS DETECTOR

A standard LP gas detector has been installed in your unit.

NOTE

It is not equipped with an automatic propane shut-off valve.

Please refer to manufacturer's manual for further instructions.



This warning label has been located in the cooking area to remind the user to provide an adequate supply of fresh air for combustion. Unlike homes, the amount of oxygen supply is limited due to the size of the recreational vehicle, and proper ventilation when using the cooking appliance(s) will avoid dangers of asphyxiation. It is especially important that cooking appliances not be used for comfort heating as the danger of asphyxiation is greater when the appliance is used for long periods of time.



Fig. 10-4 LP GAS DETECTOR

11 WATER/PLUMBING SYSTEM

Your trailer is designed with a fresh water, grey water, black water and associated plumbing to handle all of the water and waste requirements. Review this section carefully to understand each system and how they function together.

11.1 FRESH WATER SYSTEM

There are two sources for fresh water in your trailer:

1. A water tank located within your trailer.
2. By connecting to "city water" by means of a water hose.

Both can supply water to the sink, shower, bathroom toilet and the water heater.

The water system built into your trailer provides full service similar to the system used in your home. A 12-volt self-priming pump draws water from the fresh water storage tank to all cold faucets and the water heater. An automatic pressure switch, located in the water pump maintains a positive line pressure.



Fig. 11-1 WATER SYSTEM INTAKES

11.1.1 FRESH WATER TANK FILLING PROCEDURE

The water tank is not a pressure vessel. The filling procedure is done via a water pressure system and cannot be done without available water under pressure. Make sure the vent/overflow drain located underneath the tank area is open, free and clear of any obstruction before attempting to fill the tank. A blocked vent during filling could cause serious damage to the tank and even the underfloor structures.

When filling fresh water tank:

1. Connect water hose to the city water inlet connection.
2. Set pump switch in compartment, for the motorhome system, to the off position.
3. Turn systems valve to "Tank Fill" position.
4. Open source of water supply valve.
5. When the tank is close to full, check for overflow at the overflow drain. Turn the supply off as soon as water flows from the drain.

IMPORTANT

Never allow a full flow at the overflow.

6. Turn the systems valve back to normal, after external supply is turned off.
7. Turn pump switch back on and the system is ready to be used.

IMPORTANT

If you are starting from a dry system or if some faucets have been open during the tank filling procedure, you may want to slowly open all faucets one at a time to allow any trapped air to escape from the system.

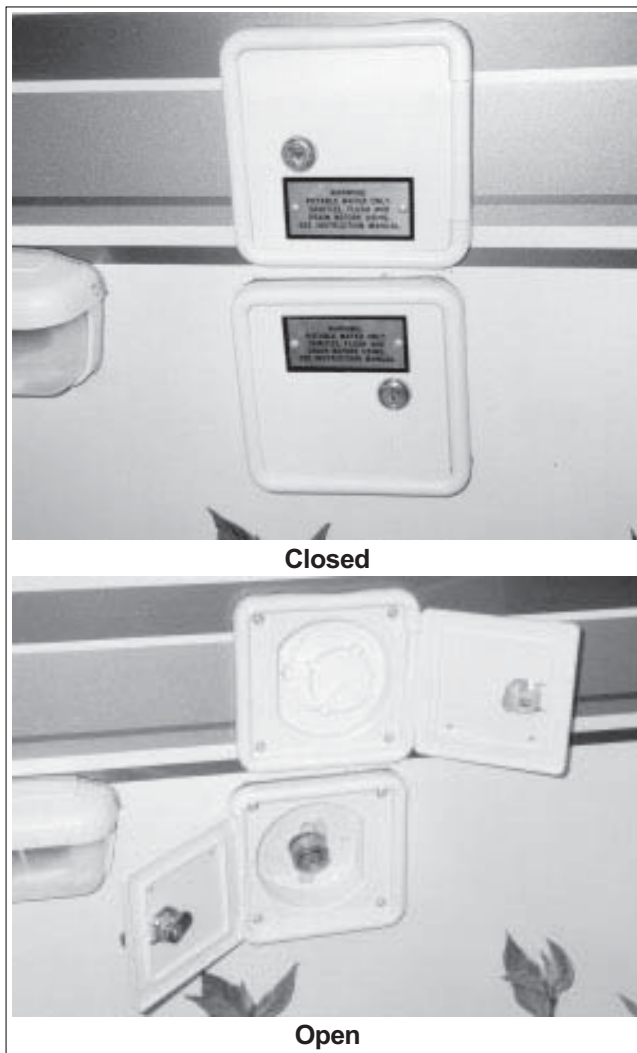


Fig. 11-2 FRESH WATER TANK FILLING

11.1.2 WATER PUMP

The water pump is designed to supply water from the fresh water tank to the various areas of your trailer on demand. When a faucet is opened, the pump comes on automatically and pressurizes the various water lines.

11.1.3 WATER PUMP SWITCH

The master switch for the water pump is located at the range hood vent. When this switch is in the on position, the pump will automatically activate when any faucet, shower or toilet is being used.

It is recommended that the pump switch be turned off whenever leaving the trailer for any period of time or while driving. A slow leak in a faucet or connection could drain both the water tank and the battery.

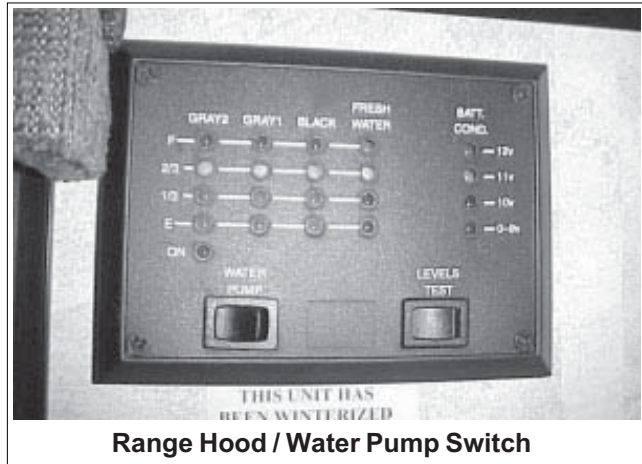


Fig. 11-3 WATER PUMP SWITCH

11.1.4 WATER PUMP FILTER

Before water can enter the various outlets in your trailer it has to flow through a water filter. This filter is mounted on the water pump.

Check the water filter periodically and clean or replace it at least annually to assure a clean supply of water.

11.1.5 WATER SYSTEM ACCESS

The water system is designed with 2 fittings on the side of the trailer. Use the top one to fill the fresh water tank and the bottom one to attach a water hose for using city water to supply and pressurize system.



Fig. 11-4 ACCESS FITTINGS

11.1.6 WATERPUMPINITIALSTART-UP

1. Make sure all drain valves are closed including the water heater valve.
2. Turn water pump switch off.
3. Fill water tank.
4. Open faucets, both hot and cold.
5. Turn pump switch on.
6. Close each faucet (cold and hot) as soon as water flows steadily.
7. Check to see that pump stops after all faucets are closed.
8. Pump is now ready for automatic operation. It will start whenever a faucet is opened.
9. Refill fresh water tank.

11.1.7 WATER PUMP TROUBLESHOOTING

1. **If pump will not prime:**
 - a. Make sure there is water in the tank.
 - b. Make sure the battery is not run down.
 - c. Make sure there are no kinks in the inlet hose.
 - d. Make sure all inlet fittings and connections are air tight.
 - e. Make sure water selector valve is set to normal.
 - f. Check for clogged lines.
 - g. Check water filter. Replace if plugged.
2. **If water pressure drops:**
 - a. Check faucets and connections for leaks.
 - b. Make sure faucet aerators and filters are clean.
 - c. Make sure there is water in the tank.
 - d. Make sure battery is not run down.
3. **If pump runs when there is no apparent demand for water:**
 - a. Make sure all faucets and fixtures are shut off and are not leaking.
 - b. Check all lines for leaks.
 - c. Make sure there is water in the tank.
 - d. Make sure no air is trapped in the system.
 - e. Make sure the tank fill water selector valve is set to normal.

11.1.8 DISINFECTION OF WATER TANK

It is recommended that fresh water systems be disinfected.

1. When the system is new and has not been used before.
2. When it's been in storage for a long period of time.
3. In case it has become contaminated.
4. **Disinfection instructions:**
 - a. Prepare a solution of 1/4 cup household bleach to 1 gallon of water. Pour this solution in to the water tank, 1 gallon for every 15 gallons of tank capacity.
 - b. Fill the tank with fresh water. Run water from each faucet, hot and cold, until you detect a chlorine odor.
 - c. Leave this solution in the system for at least 4 hours. If you wish to complete this procedure in 1 hour, double the concentration of household bleach in your solution.
 - d. After the time has elapsed, drain and flush the system with fresh water.

11.1.9 EXTERNAL WATER SUPPLY

The external water source will supply your trailer water system with water at city pressure when the water pump is switched off.

1. **Connecting:**

- a. Turn water pump switch to off.
- b. Attach garden hose to city water connection at water fill valve.
- c. Turn on external water supply.

IMPORTANT

After connecting to the external water supply, open the faucets in your trailer slowly and cautiously. Air trapped in the line can cause the water to splash into the sink. You may want to drape a wash cloth over the faucet to prevent excessive splashing.

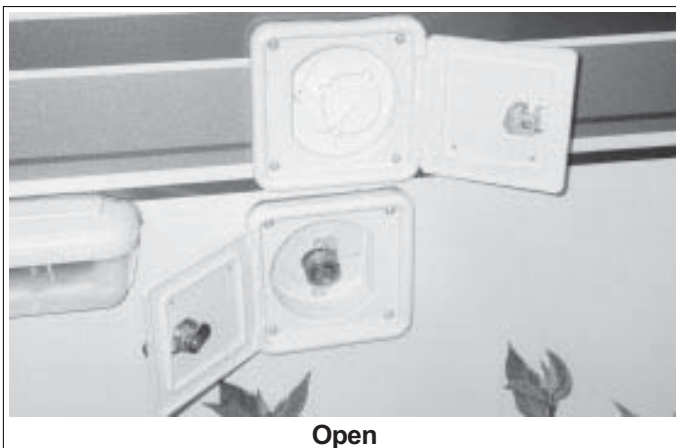


Fig. 11-5 WATER CONNECTION

2. Turn the water heater by-pass valves to normal to be sure that water enters the heater and hot water is available for trailer use.

Water from the external supply is prevented from entering the water tank and the water pump by means of a check-valve.

IMPORTANT

Some campgrounds have an excessively high water pressure which can cause problems. It is a good idea to get a pressure reducer from your RV centre and attach it to your incoming external water supply hose to ensure safe pressure for your unit.

3. **Disconnecting:**

- a. Turn off the external water tap.
- b. Relieve water pressure on the line by opening a faucet in the trailer.
- c. Disconnect hose from the trailer.
- d. Replace the protective plug back over the water connection.

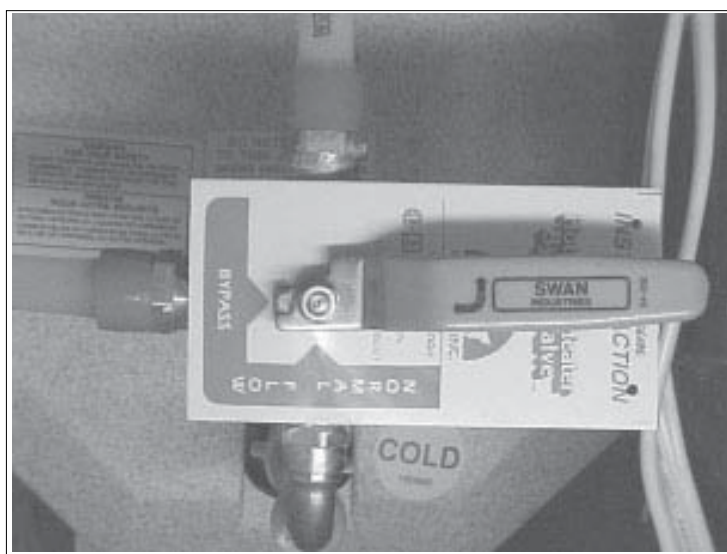


Fig. 11-6 BYPASS VALVE

11.2 WASTE SYSTEMS

11.2.1 GREY WATER - WASTE HOLDING TANK

The drainage from the kitchen sinks, bathtub and shower pan is collected in a separate grey water holding tank. This tank has its own dump valve but ties into the same termination valve outlet as the waste holding tank.

IMPORTANT

If grey water holding tank is allowed to overfill, the overflow may back up through the bathtub/shower drain.

Drain grey water holding tank in the same way after draining the waste holding tank. This will help flush solids out of the sewer hose.

11.2.2 BLACK WATER - WASTE HOLDING TANK

The black water holding tank collects all the waste from the toilet and vanity sink. Before using your waste holding tank, deodorize it by adding one gallon water and a commercial holding tank deoderizer through the toilet.

IMPORTANT

If holding tank is allowed to overfill, the overflow may back up through the toilet drain.

11.2.3 DUMPING HOLDING TANKS

When dumping holding tanks:

1. Remove drain hose from storage compartment.
2. Remove dust cap from drain outlet. Attach drain hose securely.
3. Place the other end of the hose in sewer opening.
4. Make sure hose is lying flat. Open black water valve with a quick pull. Move hose about gently to ensure flow of waste materials. When tank is empty, close valve.
5. After tank has been drained, run several gallons of fresh water into the black water tank through the toilet. Open the dump valve to flush out any residual wastes. After the tank has been drained again, close the valve.

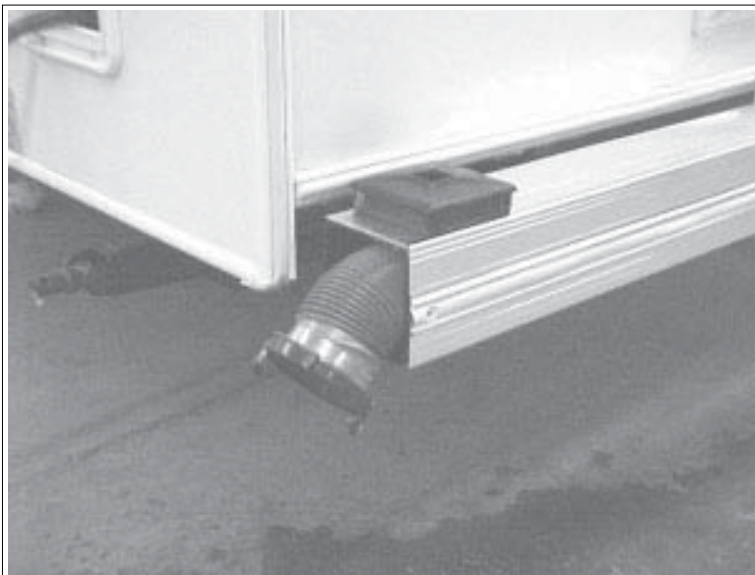


Fig. 11-7 STORAGE COMPARTMENT

NOTE

Do not open the grey water valve until black water valve is closed. This will prevent any black wastes from entering the grey water tank. Grey water also rinses out any black water residue from inside the drain hose.

6. Open grey water valve. Close after tank is empty.
7. Add an odor control chemical to the black water holding tank. These are available at any RV center.
8. Rinse the sewer hose thoroughly and store.
9. Replace the dust cover securely.

IMPORTANT

Holding tanks should be dumped before travelling to eliminate unnecessary weight while driving.

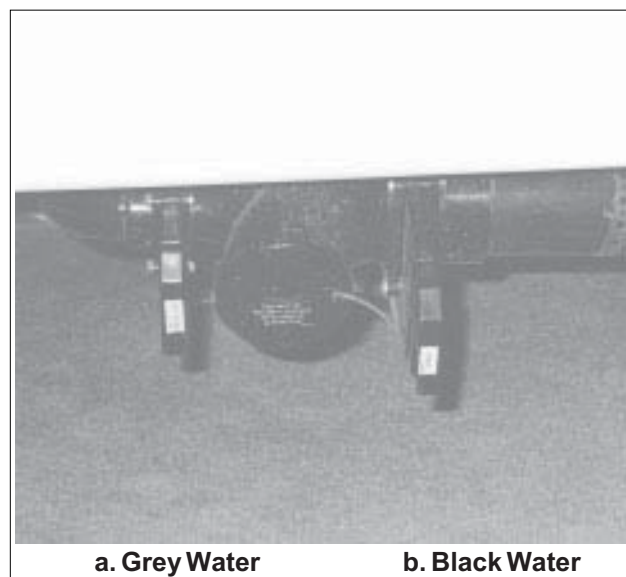


Fig. 11-8 DUMPING VALVES

11.2.4 DO'S AND DON'TS HOLDING TANKS

1. **DO** keep your holding tank clean using any cleaner approved for recreational vehicle sanitation systems.
2. **DO** add a special deodorizer or chemical additive approved for recreational vehicle systems to sanitize and improve the tank action.
3. **DO** keep your tank termination valve closed, permitting the tank to get as full as convenient before emptying.
4. **DO** keep both the tank termination valve(s) and the drain cap tightly in place when travelling to permit use of the system when stopped while travelling.
5. **DO** use any soft, single-ply, non dyed, biodegradable toilet tissue.
6. **DO** open the bath vent to keep bathroom fresh.
7. **DON'T** put facial tissues, paper, permanent (automotive) anti-freeze, sanitary napkins, or household toilet cleansers in your holding tank.
8. **DON'T** put anything solid in your holding tank which can scratch or damage the plastic.

11.2.5 USING ON-SITE SEWER HOOK-UPS

When staying at a campsite for any period of time and providing that sewer hook-ups are available, the sewer hose may be attached and left in place for the duration of the stay.

However, make sure that dump valves are left closed and are opened only once the tanks are full or when you leave the campsite. This will keep solid wastes in suspension allowing them to drain with the liquids when the valves are opened. If the valves are left open, the liquid wastes will drain leaving the solids to collect on the floor of the black water holding tank floor.

Should this happen, close the valves, fill the tank with water and drive a few miles. A 1/4 cup of dishwasher detergent added to the tank will help to clean it. The motion of the vehicle and the water will dislodge the wastes and allow the tank to be drained in the normal manner.

11.2.6 HOLDING TANK LEVEL INDICATORS

The holding tank levels may be checked on the control panel. Press the test switch to check the level in each tank.



Fig. 11-9 TANK LEVEL INDICATORS

11.2.7 TANK CAPACITIES

	Fifth Wheel	Trailer
Fresh Water	36 (136)	36 (136)
Grey Water	VARIES BY MODEL	
Black Water	36 (136)	36 (136)

Tank Capacities

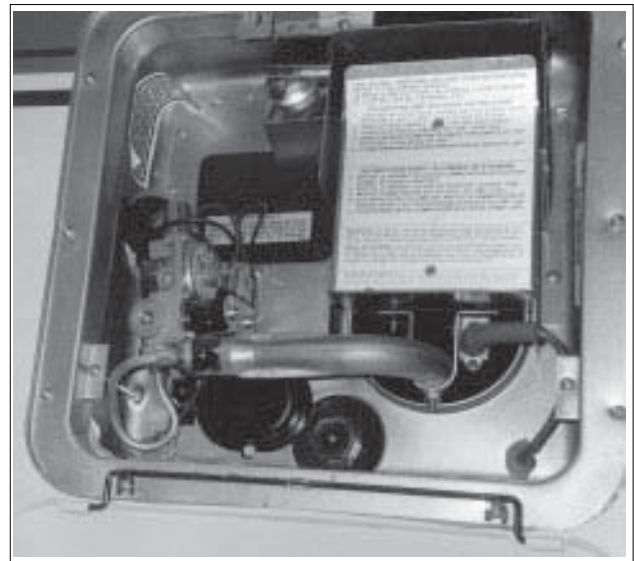


Fig. 11-10 SELECTOR SWITCH

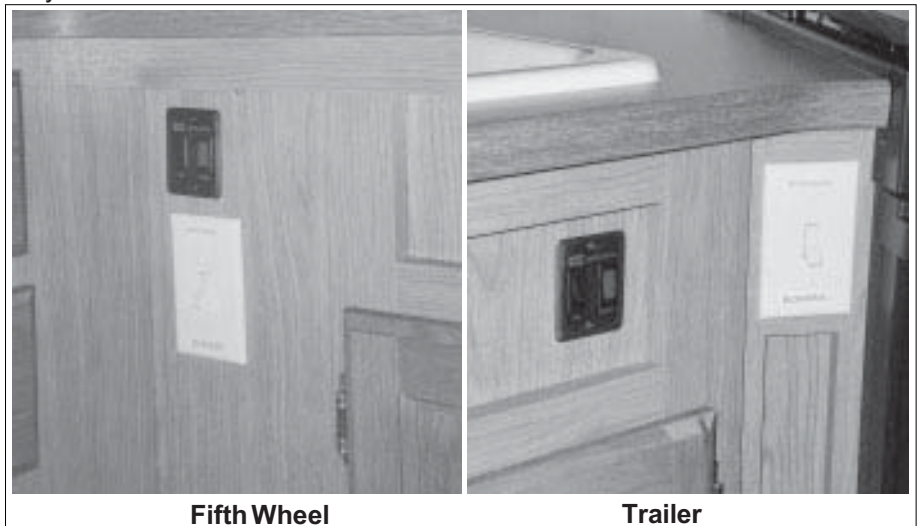
11.3 PLUMBING SYSTEM OPERATION

11.3.1 WATER HEATER

Your trailer is equipped with a 6 gallon water heater. The water is heated in one of two ways:

1. With an LP gas burner.
2. With a 120-volt heating element.

1. **LP Gas Operation:**
To ignite the heater, turn on the waterheater switch located in the kitchen. A red light in the system switch will come on when the burner has ignited.



Fifth Wheel

Trailer

Fig. 11-11 WATER HEATER SWITCH
11-10

2. **120-Volt Operation:**

Open the water heater compartment door. Find the selector switch and set it to 120-volt electrical. Refer to the operating instructions included in the information package for more details.

IMPORTANT

Be sure there is water in the hot water tank to prevent burning out the heating element when the power is turned on.

3. **Operating Features:**

- a. The water heater is equipped with a preset water temperature control. The burner will bring the water temperature up to the desired level and then automatically shut off.
- b. It is also equipped with a temperature cut-off device in case the water temperature exceeds the preset limit. The breaker will trip and shut down the burner. Before the burner will restart, the breaker will have to be reset. If it continues to trip, have the unit checked and serviced. Refer to manufacturers operating instructions included in the information package.

11.3.2 **TOILET**

Refer to manufacturer's operating instructions included in information package for more details.

Troubleshooting:

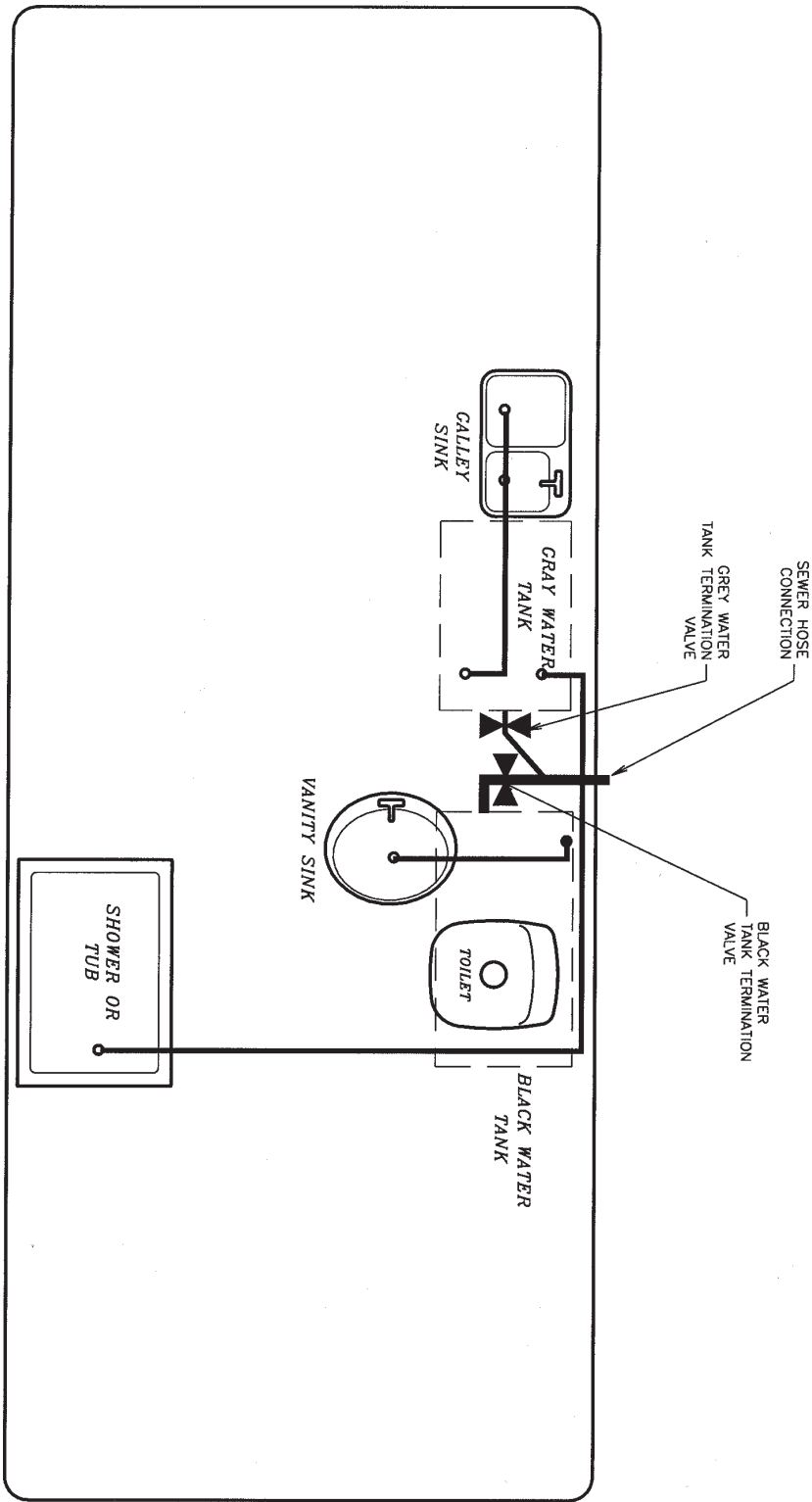
1. **Water keeps running into the bowl:**
Check to see that the levers return all the way to the left. Sticking may be caused by foreign material on the waste valve blade or blade seal at the bottom of the bowl. If problem persists, replace water valve.
2. **Toilet leaks, there is water on the floor:**
If the leak is in back of the toilet, check the water supply line connection and refer to the installation instructions. If the leak is at the closet flange area, check the closet flange nuts for tightness. If leak continues, remove the toilet and check the closet flange height. The height should be between 1/4" and 7/16" above the floor. Adjust accordingly and replace the closet flange seat if damaged.
3. **Poor Flush:**
The levers must be held fully open during the flush. A good flush should be obtained within 2 to 3 seconds. If the problem persists, remove the water supply line and check the water supply. The water supply line flow rate should be at least 10 liters per minute to ensure an adequate flush.
4. **Build-Up:**
Use the left lever to add a small amount of water in the bottom of the toilet before using. This will help to prevent a build-up of solids in the toilet.

11.3.3 **SHOWER**

To protect the surface of your ABS plastic shower pan, it is recommended that a rubber shower mat be placed in the shower pan.

Use a non-abrasive cleaner to clean your shower compartment. Do not use highly concentrated or high acid content household cleaners, as these may damage the shower compartment.

11.4 TYPICAL PLUMBING SCHEMATICS/DRAINAGE SYSTEM



FRONT OF
TRAILER OR
5th WHEEL

12 APPLIANCES AND INTERIOR FEATURES

Refer to the operator's manuals in the information package for more detailed instructions if required for each appliance, component or system.

12.1 REFRIGERATOR

The refrigerator in your trailer can be operated on either:

1. 120-volt AC electric.
2. LP gas with 12-volt ignition.

It is very important that your trailer be level when parked so that the refrigerator will operate safely and properly.

CAUTION

If the trailer is parked off-level by 3 degrees or more side-to-side or 6 degrees or more front-to-back for more than an hour, permanent damage could be done to the refrigerator.

When you park your trailer, normal levelling for comfortable living will usually place it within satisfactory level limits. Use a level to make sure.

When the refrigerator is not being used for any length of time the temperature setting should be turned to the lowest level and switched to off. The door should be opened slightly to allow for air circulation and to prevent any odor or mold build-up.

12.1.1 OPERATING INSTRUCTIONS

Read the Refrigerator Owner's Manual carefully for complete instructions on start-up, operating and shut-down instructions.

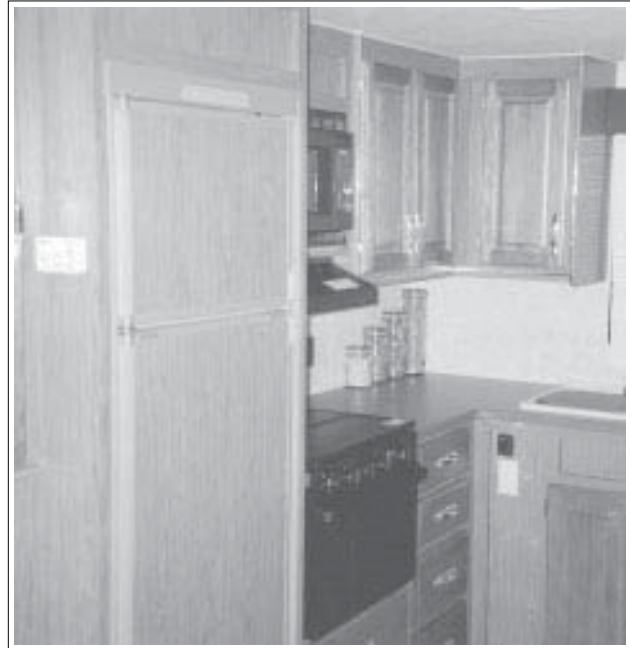


Fig. 12-1 REFRIGERATOR

12.1.2 OPERATING TIPS

1. The refrigerator should be cold before placing items in it.
2. Try not to put warm or hot items in the refrigerator. Allow them to cool off first.
3. Do not pack refrigerator too full. To operate efficiently, the refrigerator needs air to circulate.
4. Use smaller containers to store items i.e. 1 litre rather than 4 litre.
5. Use containers that seal tightly.
6. Use crumpled paper between containers to prevent movement while travelling.

12.1.3 EXTERIOR REFRIGERATOR COMPARTMENT

This compartment allows access to the refrigerator for cleaning, inspection, maintenance and service. It is a good practice to open the compartment door once in a while and make sure that the area is clean and free of any debris that might hinder air circulation.



Fig. 12-2 OPEN COMPARTMENT

12.2 RANGE AND OVEN

Both the range and the oven operate on LP gas. The oven has a pilot light which when lit can be used to start the oven at any time.

WARNING

Never use the range burners to heat the interior of your motorhome. Heed the warning label in the cooking area.

Always make sure you have adequate ventilation when the burners are operating.

12.2.1 LIGHTING BURNERS

To Light The Range:

1. Turn the burner control knob to "on".
2. Turn the piezo ignition knob until the burner ignites. If the burner does not ignite within 10 seconds, turn the burner control knob off: wait 5 minutes and try again.
3. Adjust the level of the flame by turning the control knob.

WARNING

Turn the igniter knob immediately after turning the burner on to prevent a gas build-up. Excess gas can cause a flare-up when lit.



Fig. 12-3 KITCHEN

12.2.2 SAFETY TIPS

1. Always wait 5 minutes before relighting range/oven to allow gas to dissipate.
2. The range/oven is not designed for and should never be used as a space heater.
3. Do not operate range/oven while travelling or while refuelling your vehicle at a gasoline service station. The burners may ignite gasoline fumes.
4. Do not leave the top burners on without a utensil for any length of time. Overheating of the grates may cause the porcelain enamel to crack and chip.
5. Any time the range/oven is in operation, the power range hood fan should be operating to help ensure proper ventilation.

12.2.3 RANGE HOOD

The range hood fan operates on 12-volts and should be used whenever the range or oven is being used. This will aid in removing cooking odors, steam, fumes and help in keeping the air in the trailer fresh. Keep the filter clean by washing it regularly with hot soapy water. Let it dry thoroughly before replacing it.

12.2.4 LIGHTING OVEN PILOT

1. Make sure all range and oven valves are in the off position.
3. Press and turn the oven control knob to the pilot on position. This opens the gas flow to the oven pilot.

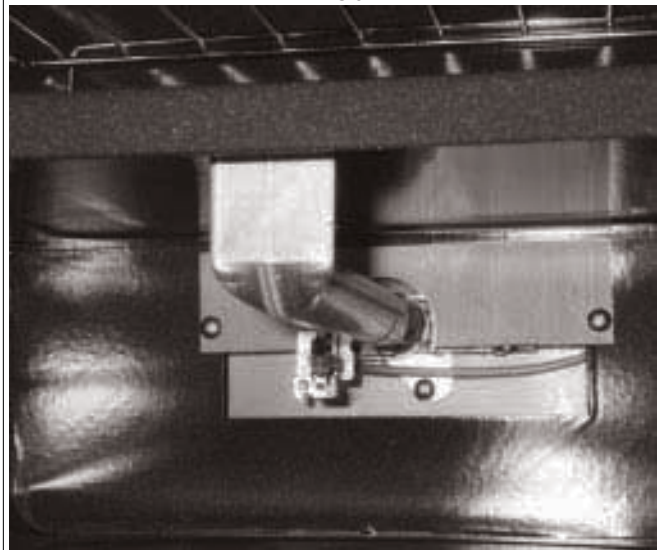
IMPORTANT

If the oven has not been used for some time it may take a few minutes for the gas to reach the pilot.

4. Open the oven door and light oven pilot. You will notice a small flame at the oven element.



Knob



Pilot Light

Fig. 12-4 OVEN PILOT LIGHT

12.2.5 OPERATING OVEN CONTROL

To adjust the oven temperature, push in the knob and turn it counterclockwise to the desired temperature setting. There may be a delay of 45 seconds before the burner is ignited. This is normal. To keep the oven temperature at the set temperature, the burner will cycle on and off.

12.2.6 SHUTDOWN INSTRUCTIONS

When finished using the oven, turn the oven control knob back to pilot on. The pilot light will remain on and the oven can be used at any time by simply adjusting the temperature setting.

When travelling or when the trailer is not in use for any length of time, turn the oven control knob off and turn off the main gas supply.

12.3 MICROWAVE OVEN

For complete instructions, refer to the manufacturer's manual.

Turn selector switch to microwave from water heater to provide power to microwave. Turn back to water heater when microwave use is finished.

Operating Tips:

1. Do not attempt to operate microwave oven with the door open since this can result in harmful exposure to microwave energy.
2. Do not defeat or tamper with the safety interlocks.
3. Do not place any object between the oven front face and the door or allow soil or cleaner residue to accumulate on sealing surfaces.
4. Do not operate the oven if it is damaged. Do not operate if the oven door does not close properly (bent) or there is damage to the hinges and latches (broken or loosened) or the door seals and sealing surfaces.
5. The oven door should not be adjusted or repaired by anyone except properly qualified service personnel.



Fig. 12-5 SELECTOR SWITCH



Fig. 12-6 MICROWAVE OVEN

12.4 MONITOR PANEL

The monitor panel, located in the kitchen, covers several systems in your trailer:

1. **Battery:**
Indicates the level of charge in the trailer battery.
2. **Fresh Water:**
Indicates the amount of fresh water in the fresh water tank.
3. **Holding Tanks:**
Indicates the amount of waste in the grey water and black water holding tanks.

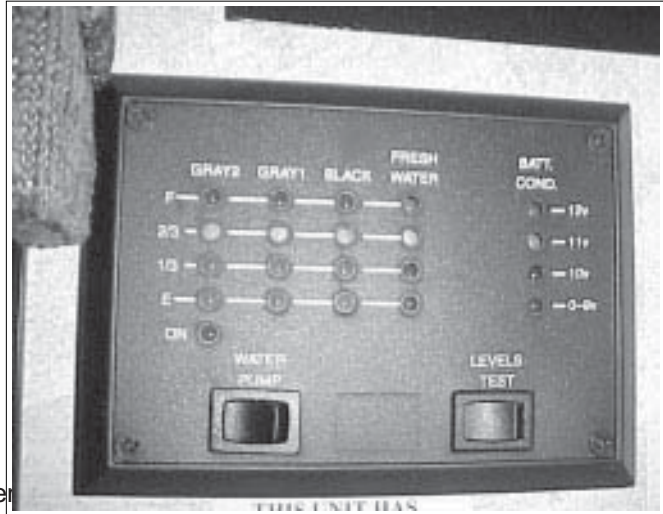


Fig. 12-7 MONITOR PANEL

To check the level for any of the systems, press the levels test button and read the level.

CAUTION

Do not allow the holding tanks to overfill as this could cause waste to back up through the toilet or the bathtub/shower drain.

IMPORTANT

The master switch for the water pump is also located on the monitor panel.

12.5 LP GAS FURNACE

The furnace should not be operated when the vehicle is underway, and the LP gas should be turned off at the LP container at any time the trailer is operated on public roads.

The furnace is controlled either by a thermostat or if the unit has the air conditioner option by the climate control center. This device located in the galley area or bedroom, controls the furnace, roof air conditioner, or air conditioner heat strip. Please consult the climate control centre manual for instructions on operation.

The furnace has no pilot light but is ignited by a direct spark ignition system. No manual lighting is required.

1. To Start Up:

- Close the LP gas tank valve.
- Slide the thermostat switch from off to heat.
- Set the thermostat above room temperature to start the blower. There will be a slight delay before the blower comes on. Allow the blower to run for 5 minutes to purge the combustion chamber.
- Move thermostat lever below room temperature. The blower will continue running for about 2 minutes.
- After the blower stops, open the LP gas tank valve.
- Set thermostat to desired temperature. If set above current room temperature, the blower will come on.
- After about 30 seconds, the automatic ignition device will light the burner. Do not attempt to light the burner manually.
- There should be warm air coming from the heating ducts. If the burner fails to light, repeat steps a - e.
- If the burner fails to ignite after 3 attempts, slide the thermostat to the off position, close the LP gas tank valve and contact your dealer or a local RV service center.

IMPORTANT

After the initial start-up the furnace will automatically cycle on and off as it delivers the required heat. The thermostat should be in the heat position.

2. To Shut Down:

- Slide the thermostat to the off position.
- Close the LP gas tank valve.

For additional information and instructions, refer to the furnace manufacturer's manual.

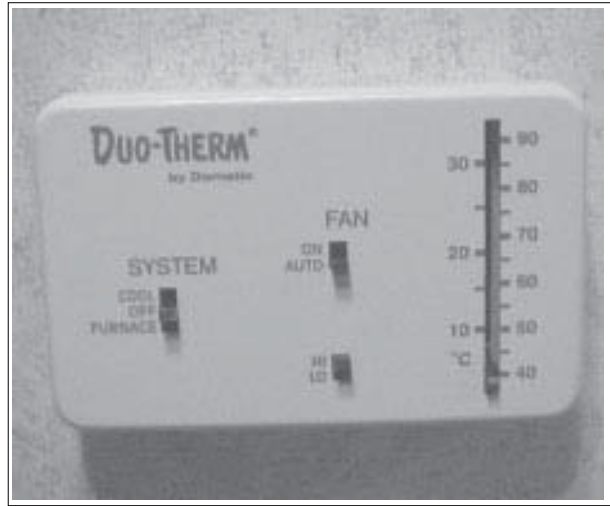


Fig. 12-8 COMFORT CONTROL

12.6 ROOF AIR CONDITIONERS (OPTIONAL)

The roof air conditioners are controlled by the climate control center. Adjust the control to cooling. Select the temperature and the fan speed to suit your needs.

1. **Maintenance:**

We recommend that the filters be cleaned or changed at least every two weeks when the air conditioner is in operation. Do not operate your air conditioner without the filter installed.

2. **Cleaning and/or Changing Filters:**

- Remove the filters by pressing the 2 retainer clips and remove the plastic grill. The filter is kept in place by the 4 corner pins.
- Remove filters and wash them in warm soapy water. If they are excessively dirty, replace them with new filters.
- Replace filters by removing the plastic grill. Make sure the corner pins hold the filter in place.



Fig. 12-9 AIR CONDITIONER

12.7 TV ANTENNA (OPTIONAL)

The TV antenna on your trailer is easily raised, rotated through 360 degrees and lowered from inside the trailer by turning the crank or rotating knob.

1. **Raising the Antenna:**

Pull on the control and turn the elevating crank clockwise in the up direction until resistance is noticed. Turn the amplifier power switch on to receive the signal.

2. **Operation:**

Depress the appropriate switch on the selector to select the signal from the antenna or cable.

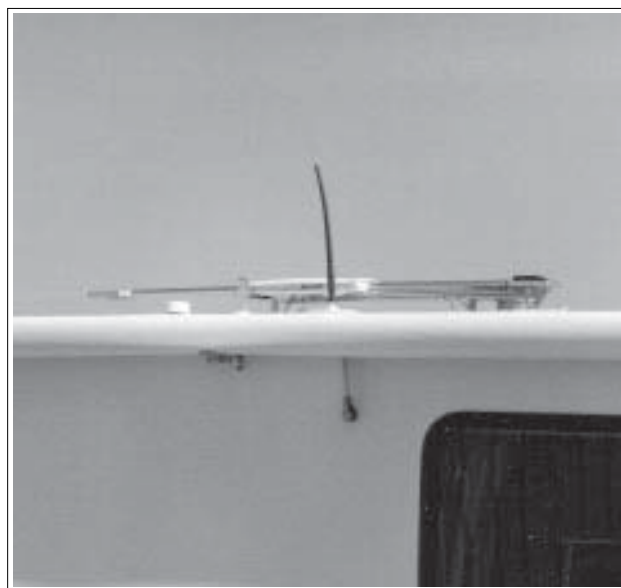
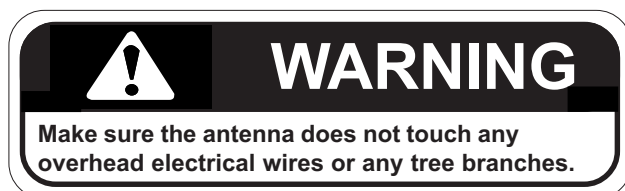


Fig. 12-10 ANTENNA



3. **Rotating the Antenna:**

After antenna is in the up position, push up on the assembly until it disengages the raising gear. Rotate the antenna for best sound and picture.

4. **Lowering the Antenna:**

Rotate the antenna until the pointer on the rotating knob and the ceiling plate align. Pull down on handle assembly and turn the crank in the down (counterclockwise) direction until some resistance is noticed. The antenna is now locked in the travel position. Turn amplifier power switch off.

As a simple reminder for future reference, count the number of turns required to raise and lower the antenna. Normally this will be about 13. Mark the position of the crank handle on the ceiling with a piece of tape as well as the number of turns.



Fig. 12-11 ANTENNA CONTROL

CAUTION

Make sure antenna is always lowered completely in the travel position. Leaving the antenna in a partially raised position during travel can damage the gear mechanism.

Always align the directional handle to down before lowering the antenna.

12.8 SIGNAL AMPLIFIER (OPTIONAL)

Refer to your TV Antenna Manual.

12.9 ENTERTAINMENT CENTER (OPTIONAL)

Refer to manufacturer's manual for operating instructions and maintenance information.



Fig. 12-12 ENTERTAINMENT CENTER

12.10 CABLE TV HOOK-UPS

The cable TV hook-up is located on the outside of the trailer. Raise the cover and connect the terminal for the signal.



Trailer and Fifth Wheel

Fig. 12-13 CABLE

12.11 SLEEPING FACILITIES



1. Sofa/Bed Conversion:

The sofa converts into a bed. To convert to bed:

- a. Lift the sofa seat up from the base.
- b. Pull forward until the back drops down to a bed position.

To convert back to a sofa:

- a. Lift and push the sofa back against the wall.

2. Dinette:

The standard dinette also can be converted into a bed:

- a. Remove cushions.
- b. Lift table and remove the table legs.
- c. Drop table between seats so that the edge of the table rests on seat edge supports.
- d. Arrange cushions to form a bed, placing larger cushions in the center.

To convert back to a dinette, reverse the above instructions.



Fig. 12-15 SOFA BED



Fig. 12-16 DINETTE (OPTIONAL)

12.12 FRESH WATER TOILET

The toilet in your trailer is very much like the one in your home except that it uses a much smaller amount of water for flushing. When the levers are moved to the right for flushing, a high velocity stream of water produces a swirl effect that should effectively cleanse the toilet. If you wish, a deodorizing agent may be used to eliminate any odors from the toilet.

1. Flushing the Toilet:

- a. Push both levers to the right and hold open during the flush.
- b. Release the levers. A small amount of water should remain in the bowl.
- c. If you wish to add more water to the bowl, push the small lever to the right and hold until you have the desired level of water.



Fig. 12-17 TOILET

For additional information and instruction, see the manufacturer's toilet manual.

2. Operating Tips:

- a. Do not use facial tissue or regular household toilet tissue in the RV toilet. It will not disintegrate properly and will cling to the sides and bottom of the holding tank making it hard to clean. The clinging tissue can also short-circuit the terminals inside the tank that indicate the holding tank level at the monitor panel. Use only toilet tissue available at your RV center designed for use in RV toilets.
- b. Do not flush sanitary napkins or other non dissolving items down the toilet.
- c. Do not use automotive anti-freeze or caustic chemicals such as household bleach in the toilet or holding tank. These can damage plastic or rubber parts in the system.

3. Cleaning the Toilet:

The toilet should be cleaned regularly for sanitation and efficient operation.

- a. Clean the toilet using a mild bathroom cleaner. Do not use caustic or abrasive cleansers. Do not allow cleaners to remain in the toilet bowl for any length of time. Plastic surfaces and seals could be damaged.
- b. Dump and rinse the holding tank after cleaning and flushing the toilet.
- c. Add a bit of odor control chemical every few days to eliminate any possibility of odor in the bathroom.
- d. If the operation of the flush valve becomes stiff, it may be lubricated with silicone spray. Turn off the water pump, drain all the water from the toilet bowl and spray silicone lubricant inside the flush valve. Operate the valve several times to make sure it is operating freely.

For instructions on preparing the toilet for cold weather storage, refer to the section on winterizing.

12.13 ENTRY STEP

Each trailer is designed with an extendable step that provides convenient access to the trailer. Release, pull step out and latch to use steps. Release, push in and latch prior to travelling.

Periodic maintenance including lubrication and cleaning are necessary to keep the step functioning properly.

See manufacturer's manual for operating instructions.



Fig. 12-18 STEP

12.14 SCREEN WINDOWS

The screen windows have been designed so that the screen may be removed. To remove the screen, push it up and pull it.

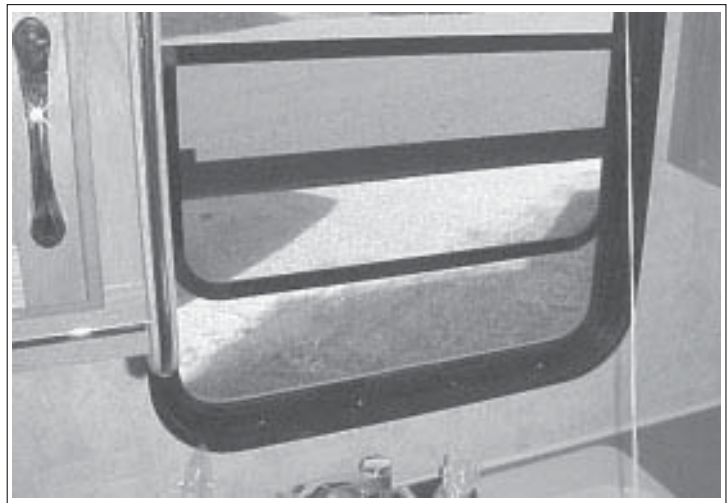
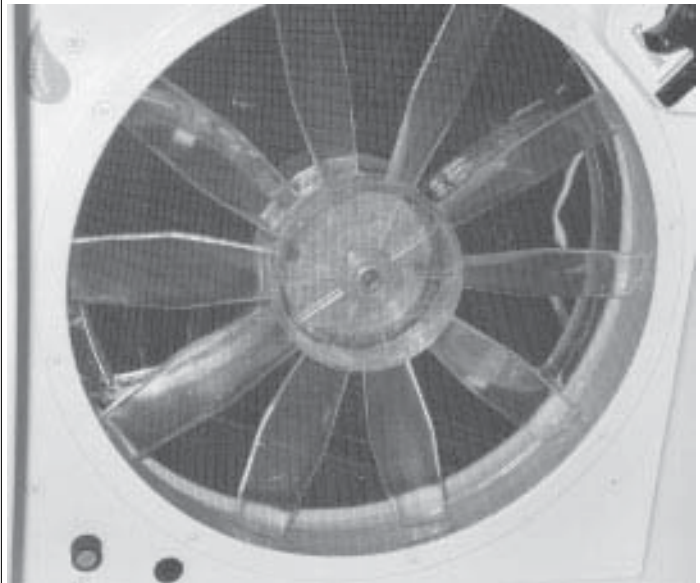


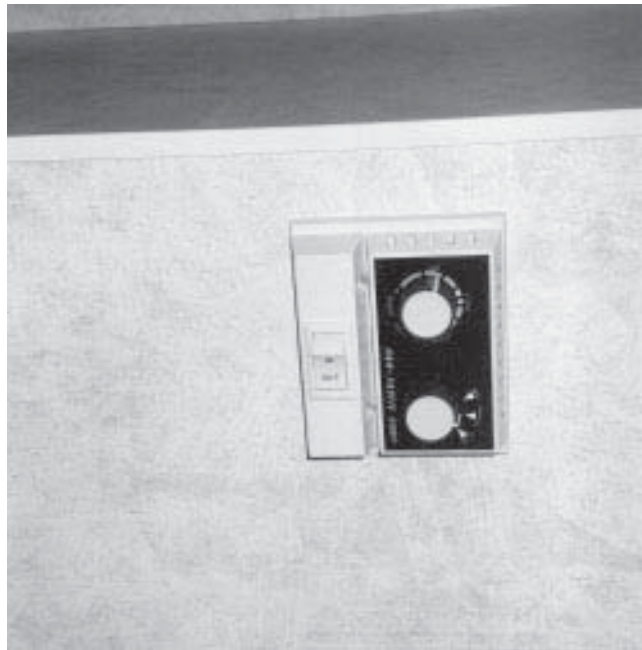
Fig. 12-19 SCREEN WINDOWS

12.15 POWER ROOF VENT (FS320TE ONLY)

Your trailer may be equipped with an optional power roof vent. These are designed to move a lot of fresh air through your motorhome and reduce the need for air conditioning under many circumstances. The vent dome can be raised or lowered using the crank handle. A push button switch turns the fan on or off.



Vent Fan



Controls

Fig. 12-20 ROOF VENT SYSTEM

13 CARE AND MAINTENANCE

13.1 EXTERIOR

1. **Roof:**

The roof is made with a wood frame and constructed in a wood truss type method. It is strong enough to support the weight of an average adult should it become necessary to repair the roof or any of the roof mounted components. It is not recommended to carry large heavy objects on the roof. The additional strain of the weight along with the movement of the vehicle could cause damage to the roof. Check the roof regularly, especially the sealant around vents, air conditioners, body-to-roof seams, etc. for possible leaks. Any suspected leaks should be repaired immediately. Any leakage could result in damage to the interior of the trailer.

2. **Underbody:**

Mud and dirt along with corrosive materials used to control dust or ice on the roads can accumulate underneath your trailer and cause premature deterioration and rusting. In addition, any build-up will add unnecessary weight to the vehicle. It is recommended that the undercarriage and the entire underbody be rinsed and flushed every time the trailer is washed.

3. **Washing, Waxing and Polishing:**

Damaging salts, calcium chloride, road tar, tree sap, insects and other foreign material have a way of accumulating on the body of your trailer. To reduce the harmful effects of these agents it is recommended that the trailer be washed frequently and thoroughly using a mild soap and warm water. Do not wash the exterior in direct sunlight and never use hot water. Pressure washers are not a good idea as they can loosen decals and sealants.

Fiberglass components can be polished with a polish such as Formula 5 (clean and glaze) to reduce the yellowing of the fiberglass with age. After polishing, apply a coat of automotive wax. Do not use this polish on the painted or decaled areas of the vehicle.

Carefully inspect all caulking around windows, doors, and vents as well as all other joints. Recaulk if necessary using the correct caulking material from your Triple E RV dealer.

CAUTION

Never use strong solvents or harsh abrasives on painted surfaces.

4. **Stripes and Decals:**

A few hints and precautions on care and maintenance:

- a. Wash with plain soap and warm water. Rinse thoroughly.
- b. Never wash with high-pressure washer at close range. The force of the water can lift the edges of the decals.
- c. Do not use solvents. They can smear the colors and damage the adhesive.
- d. Never use lacquer thinner or paint on decals.

5. **Exterior Lighting:**

Before each trip, inspect all clearance lights, identification lights, marker lights, stop lights, turn signal lights and backup lights. Replace burned-out bulbs immediately. Keep all light lenses clean with soap and water.

13.2 INTERIOR

Accumulations of dirt and dust not only detract from the appearance of the interior of your trailer but will shorten the life of the carpets and fabrics. Weekly cleaning and vacuuming is recommended.

1. **Carpets:**

See the manufacturer's carpet care guide on how to clean soil, dirt and stains from the carpet.

2. **Upholstery:**

Care should be taken when cleaning upholstery materials in your trailer. Regular vacuuming and wiping with clear water will take care of most stains. Any major cleaning problems should be undertaken by professional cleaners.

IMPORTANT

Direct sunlight will cause fading of upholstery and fabrics. To minimize the effect, close drapes, blinds and shades whenever possible.

3. **Spots and Stains:**

Most spots and stains can be removed by using clear warm water. To keep the stain from spreading, start from the outside of the stain and work toward the center.

Stains such as lipstick, grease, ink or mustard are very hard to remove and will probably require some professional advice or help.

4. **Vinyl Fabrics:**

Vinyl should be cleaned with a soft, damp cloth using a mild detergent. Never use solvents of any kind on vinyl surfaces.

5. **Velvets:**

Come with fire rating cleaning code "S". Cushion covers should not be removed and dry cleaned. Stain guard protected.

CLEANING CODE "S"

CAUTION

Use of water-based and detergent-based solvent cleaners may cause excessive shrinking. Water stains may become permanent and unable to be removed with solvent cleaning agents.

6. **Draperies, Curtains and Bedspreads:**

These are made from a variety of fabrics and will require the help of professional cleaners. It should be noted that most materials will probably shrink by about five percent even when cleaned professionally.

7. **Cabinetry:**

Only the finest wood products have been used in the construction of your trailer. To clean, use a soft cloth and a high quality wood finish cleaning product available from your Triple E dealer or other RV centers.

The beauty of the wood is in the natural variations in grain and density causing some differences in color and shading.

8. **Walls:**

As a rule, walls can be cleaned easily using warm water and a mild soap. For easier cleaning of accumulated grime, a bit of rubbing alcohol may be added to the water. Never use solvents or abrasives.

9. **Tables and Countertops:**

The plastic laminate on work surfaces will resist solvents, stains and abrasions. A coat of furniture wax will help preserve their beauty and make cleaning easier.

10. **Sinks:**

The acrylic sinks can be cleaned with warm water and soap. Wipe dry to avoid streaks.

11. Refrigerator:

The cabinet interior should be cleaned regularly. Remove shelves and wash the lining with lukewarm water to which a mild soap may be added. Dry thoroughly, especially around door frame and door gasket. Warm water only should be used to wash the cooling evaporator, ice trays and shelves. Never use strong chemicals or abrasive cleaning materials on any part of the cabinet. See manufacturer's information.

12. Power Range Hood:

The filter on your power range hood should be removed, washed with detergent and hot water, rinsed and replaced after each trip. Before replacing the filter, wash the grease and collected dust from the inside hood surfaces with a damp cloth.

13. Range/Oven (option):

a. General:

Regular cleaning with a warm detergent solution and soft cloth will keep your range looking bright and new. This should be done as soon as range cools.

b. Oven Interior:

Clean as soon as possible after use when the oven is cool. Grease spatters that are allowed to become hard and baked on become very difficult to remove. Care must be taken to avoid bending the thermal sensing element, which could cause a variation between the oven temperature and the dial setting. If oven cleaners are used, protect aluminum gas tubing, thermostat sensing element and electrical components from the cleaners. Thoroughly rinse oven with a solution of one tablespoon vinegar to one cup of water and wipe dry.

c. Top Burners:

Top burners (caps and grates) may be cleaned with a detergent solution. If any burner port should become clogged, clean with a toothpick. Never use pins or other metal objects to clean the ports, as they may become enlarged. If the burner is washed in a sink, dry immediately by shaking off all excess water and lighting the burner until all water has evaporated.

14. Microwave:

Consult owners manuals for detailed instructions. Keep the door and inside of your microwave oven clean. No grease, soil or spatter should be allowed to build up. A build up of soil will absorb microwave energy, just the same as the food you are cooking and may increase the cooking time.

a. When food spatters or spilled liquids adhere to walls, wipe with a damp cloth. Mild detergents may be used if the oven gets very dirty. The use of harsh detergents or abrasives is not recommended.

b. The outside oven surface should be cleaned with soap and water, rinsed and dried with a soft cloth. To prevent damage to the operating parts inside the oven, water should not be allowed to seep into the ventilation openings.

c. If the control panel becomes wet, clean with a soft, dry cloth. Do not use harsh detergents or abrasives on control panel. When cleaning the control panel, leave the oven door open to prevent oven from accidentally turning on. After cleaning touch cancel pad to clear display window.

d. It is necessary to remove the glass tray for cleaning. Wash the tray in warm sudsy water or in a dishwasher.

e. The roller ring and oven cavity floor should be cleaned regularly to avoid excessive noise. Simply wipe the bottom surface of the oven with mild detergent water or window cleaner and dry. The roller ring may be washed in mild sudsy water or dishwasher. Cooking vapors collect during repeated use but in no way affect the bottom surface on roller ring wheels. When removing the roller ring from cavity floor for cleaning, be sure to replace it in the proper position.

15. **Bathroom:**

a. **General:**

As a general rule, use warm water and mild soap to clean walls and surfaces in your bathroom. On glass doors and mirrors a good quality glass cleaner may be used. Harsh cleaners, detergents or abrasives should never be used.

b. **Shower Compartment:**

Use a non-abrasive cleaner to clean your shower compartment. Do not use highly concentrated or high acid contact household cleaners, as these may damage the shower compartment.

c. **Counter Tops and Lavaratory Sink :**

Use warm water and mild soap to clean the counter tops and sink. Harsh cleaners, detergents or abrasives should never be used.

d. **Toilet:**

For instructions on the care of the toilet, refer to the toilet manufacturer's manual.

16. **Doors and Windows:**

Door locks and hinges should be lubricated periodically with powdered graphite to keep them operating easily and to protect against freeze-up.

Windows should be cleaned using a good glass cleaner.

14 STORING YOUR RV

All systems, components and appliances should be inspected and repaired prior to storage.

Checklist:

1. Park trailer as level as possible, end to end and side to side.
2. Ensure that battery has a full charge and disconnect cables. Charge monthly.
3. Wash trailer. If exposed to road salts, the exterior and underside should be thoroughly washed and flushed.
4. Remove all perishables and anything which may freeze (canned goods, medicine, etc.). Leave the refrigerator door open. Be sure controls are turned off.
5. To ventilate living area, open drawers, cabinets, closets, etc..
6. Drain the holding tanks, toilet and living area water system. Deodorize and allow to dry. Turn off the water heater. Drain fresh water tank and water heater. Winterize (to store) water system as detailed in Water System Winterization in Section 17.2.
7. Remove water filter and put inside where it will not freeze.
8. Turn off LP gas tank valve.
9. Make sure furnace manual valve and thermostat are set at off, range/oven burners at off, fridge and oven at off.
10. Add RV anti-freeze (1/2 cup each) to the kitchen, bathroom and shower drains.

15 COLD TEMPERATURE STORAGE

15.1 WATER SYSTEM WINTERIZATION

1. Drain the fresh water tank.
2. Turn off the water pump.
3. Drain the water heater using the drain/relief valve located at the water heater.
4. Turn the winterizer valve on the utility module to the winterize position and turn the hot water tank bypass valve to the bypass position.
5. Remove the suction hose from the water pump. Attach a hose to the suction side of the pump and place this hose into a jug of potable antifreeze.
6. Turn on the pump.
7. Open the hot water faucet furthest from the pump. Do this on all faucets, hot and cold. Do not forget the toilet, shower and exterior shower. When red anti-freeze appears let about a cup run down the drain, this will winterize the trap.
8. Turn off the pump.

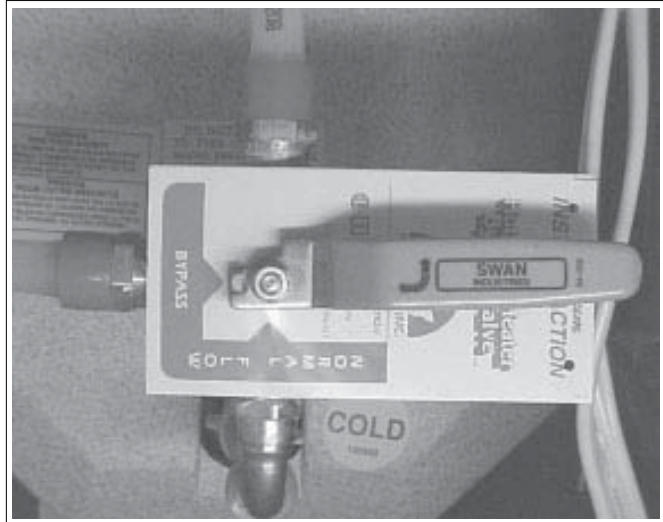


Fig. 15-1 BYPASS VALVE

9. Now open an interior faucet to relieve system pressure. Open the city water connection, open the dust cap and press the valve inside the inlet with a small screw driver until anti-freeze starts to flow. This will ensure frost protection for the inlet pipe.

15.2 DE-WINTERIZED WATER SYSTEMS

1. Fill the water tank with clean water.
2. Turn the winterization valve in the utility module to the normal position.
3. Turn on the pump.
4. Open the water faucet furthest away from the water tank. Run the water until clear water appears. Shut off the faucet, and do this to all faucets, and shower head.
5. Open the hot water line until water appears.

CAUTION

Do not turn the water heater bypass valve to the normal position until clear water appears at all faucets.

Consult the winterizing system manual contained in your information package.



WARNING

Never use automotive type anti-freeze in fresh water system. These are highly toxic.

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